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Liability on Cheap Tickets

AN important statement was made by the Minister of Transport in the House of Commons on April 13 on the result of his negotiations with the railway companies as to the acceptance of liability to passengers holding cheap tickets. Dr. Burgin said that the four main-line companies had informed him that they would not in future seek to exempt themselves by special contract from their liability at common law in respect of injury, fatal or otherwise, to passengers (other than those holding privilege tickets or free passes) when travelling in the companies' trains or whilst in the act of entering, or alighting from, such trains. Where in the case of passengers holding workmen's tickets who might be injured in such circumstances the railway companies' liability at common law was limited by special Act, the companies would not plead such limitation. The conditions of issue of cheap day, half day, and evening tickets and workmen's tickets would be amended accordingly in due course, and meanwhile the companies had decided to apply these concessions to accidents which occurred on or after December 1, 1937. It will be remembered that soon after the introduction on May 1, 1933, of summer (afterwards monthly return) tickets, the companies accepted common law liability to users of such tickets, but until now had contracted out of any liability to holders of other cheap tickets. In the case of workmen's tickets the liability was in many instances limited by special Acts to £100.

Major F. G. Wright

With the death of Major F. G. Wright, recorded on page 809, there has passed one who for many years was a leading personality in railway locomotive engineering. During his long association with the Chief Mechanical Engineer's Department of the G.W.R., he was responsible for planning many of the late Mr. Dean's passenger engines, including the 7-ft. 8-in. single wheelers that took the place of the 8-ft. broad gauge singles at the conversion of gauge in May, 1892. His versatility was shown in many ways, one of which was his work in connection with standardising engine depots, a noteworthy feature of Great Western practice. Opened over 30 years ago, Old Oak Common engine shed—still the best in London—is a lasting monument to him. From 1903 he was Chief Assistant to the Chief Mechanical Engineer. We had the pleasure of his acquaintance during this period, and he impressed us with his broadness of outlook and untiring activity of mind and body. He was one of the expert witnesses at the trial of Driver Eskdale who was involved in the fatal derailment of an L.N.E.R. express at Carlisle on January 3, 1931. On that occasion there was a weight of evidence against the driver, but by careful investigation and reconstruction of the circumstances Major Wright and Colonel L. B. Billinton, the other expert locomotive witness, were able to present evidence which undoubtedly contributed to the acquittal of the defendant.

* * * *

The Week's Traffics

For the past week the receipts of the four main line companies include the long-distance bookings for the Easter holiday and in the comparison with an ordinary week in 1937 passenger train takings are substantially up. The decreases in merchandise and coal receipts are, however, heavier than might have been expected. Passenger train earnings for the past week on the L.M.S.R. amounted to £696,000, an increase of £59,000 in comparison with Good Friday week 1937; on the L.N.E.R. to £415,000, an increase of £34,000; on the Great Western to £289,000, an increase of £21,000; and on the Southern to £431,000, an increase of £39,000. The merchandise receipts of £415,000 on the L.M.S.R. were £13,000 lower than those for Good Friday week 1937, and the corresponding traffics of £275,000 on the L.N.E.R., of £160,000 on the Great Western, and of £52,000 on the Southern showed decreases of £28,000, £23,000, and £500 respectively. In the coal traffics of the four companies there was an aggregate decrease of £86,500.

	15th Week				Year to date	
	Pass., &c.	Goods, &c.	Coal, &c.	Total	Inc. or Dec.	
	£	£	£	£	£	%
L.M.S.R. ..	+ 264,000	— 134,000	— 64,000	+ 66,000	+ 169 000	+ 0·95
L.N.E.R. ..	+ 131,000	— 10¹,000	— 86,000	— 5⁵,000	+ 226,000	+ 1·74
G.W.R. ..	+ 110,000	— 56,000	— 2¹,000	+ 33,000	+ 177,000	+ 2·45
S.R.	+ 153,000	— 17,000	— 11,000	+ 125,000	+ 115,000	+ 2·13

Total receipts of the four companies for the past week were £3,270,000, an increase of £2,000 on Good Friday week 1937.

* * * *

Freight Charges and Traffics

From the Ministry of Transport statistics for the separate months of the year 1937 relating to all British standard-gauge railways may be obtained some indication of the effect of the 5 per cent. increase in charges which became operative last October. For the 40 weeks ended October 2, 1937, the volume of freight traffic (except livestock) conveyed was 227,556,833 tons, an increase of 14,553,325 tons or 6·43 per cent. Receipts from this traffic amounted to £70,284,373, an improvement of £3,236,112 or 4·83 per cent. in comparison with the corresponding period of 1936. During the twelve weeks ended December 25 last

the tonnage of goods and minerals conveyed was 72,135,341 tons, an advance of 3,320,404 tons or 4·83 per cent. in comparison with similar weeks in 1936, whereas in the receipts of £23,144,360 there was a gain of £1,504,938 or 6·95 per cent. Higher class merchandise for the 40 weeks showed an increase of 6·49 per cent. in tonnage and of 3·56 per cent. in receipts in comparison with the corresponding period of 1936. For the twelve weeks ended December 25 last the tonnage of this merchandise was 12,480,680 tons, an increase of 142,880 tons or 1·16 per cent., and the corresponding receipts of £10,468,393 showed an advance of £211,235 or 2·06 per cent. In Classes 1 to 6 the tonnage increase for the 40 weeks was 7·47 per cent., and the money increase 4·25 per cent., whereas for the twelve later weeks the 14,392,700 tons showed an advance of 1,069,721 tons or 8·03 per cent. with receipts of £3,770,027 which were higher by £480,232 or 14·59 per cent. Coal class traffics for the 40 weeks were up 6·79 per cent. in tonnage and 6·69 per cent. in receipts, whereas for the twelve weeks to December 25 last the corresponding percentage increases were respectively 4·88 and 10·05.

* * * *

Overseas Railway Traffics

During the past fortnight the traffics of Argentine railways have continued to fall though it must be remembered that comparisons are with a period of expanding traffics in the previous financial year. Thus, at this time a year ago the Central Argentine had an aggregate increase of £1,427,995, the Buenos Ayres Great Southern one of £823,789, the Pacific one of £393,503, and the Western one of £184,523, so that even now there is some improvement in each case on the 1934-35 position. To date the

	No. of Week	Weekly Traffics £	Inc. or Decrease £	Aggregate Traffic £	Inc. or Decrease £
Buenos Ayres & Pacific ..	42nd	99,442	— 24,876	3,702,982	— 205,249
Buenos Ayres Great Southern ..	42nd	143,797	— 27,295	6,341,252	— 7,598
Buenos Ayres Western	42nd	42,680	— 23,077	1,903,474	— 168,502
Central Argentine	42nd	107,965	— 63,437	5,118,406	—1,340,951
Canadian Pacific	15th	511,800	— 31,000	7,021,200	— 398,800
Bombay, Baroda & Central India	1st	278,475	— 825	278,475	— 825

Central Uruguay Railway has an increase of £17,101 in sterling. The Great Western of Brazil shows an increase of 803 contos but a decrease of £4,200 for the first 16 weeks.

* * * *

The Gravesend and Higham Canal

The Southern Railway is now engaged in filling up the greater part of the Gravesend and Higham Canal which it obtained power to close, except the Gravesend Canal Basin, by its Act of 1934. The filling up is being undertaken partly in order to avoid renewing the camp-sheeting which would otherwise be necessary to support the North Kent line which closely adjoins the canal, and partly because the canal forms a convenient tip for the spoil that a railway always has to dispose of. Under its original title of the Thames & Medway Canal this waterway was constructed in order to save 30 miles in the transit of barges between Medway ports and London. Work was begun in 1800 but was not completed until 1824 largely by reason of a lengthy tunnel of 2¼ miles between Higham and Rochester. The canal was 28 ft. wide at the bottom and 50 ft. wide at the top and it had a 7-ft. depth of water. The width of the tunnel excavation was about 30 ft., of which 24 ft. were used for the canal and the remaining space for a towpath. A railway between Gravesend and Strood was constructed by the Canal Company along the banks and through the tunnel along the towing path. Both railway and canal were acquired in 1846 by the South Eastern Railway Company, which filled up the canal through the tunnel and opened the railway as a double line in 1847.

An A.T.C. Test on the Great Western

Certain remarks of the Minister of Transport reported in our issue of April 1 suggest that it may not be long before there are important developments in this country in the application of automatic train control. In this connection special interest attaches to the particulars we give on page 797 of a test run on the G.W.R. made to demonstrate that company's system, which has now been in use for many years. So satisfactory has it proved in practice that its extension to all the principal main lines of the company is now almost complete. One of the chief advantages of this system, of course, is that any failure is on the side of safety, as a warning signal would be given in the locomotive cab and the brakes be applied automatically. We understand that failures are, in fact, extremely rare, for the knowledge that they would cause delays to traffic no doubt acts as a stimulus to the maintenance staff. There is no doubt that a plain distant signal warning, as used on the Great Western, provides important benefits. The extension of multiple-aspect signalling, and the increasing use of multiple-unit electric trains with their numerous driving positions, complicate the matter and, as we have said before, the question of the general application of A.T.C. should be considered as a part of signalling developments as a whole.

* * * *

"The Lowest Order of Travellers"

It was the first Secretary of the G.W.R. who termed his third class passengers "The lowest order of travellers" and Mr. F. R. E. Davis, the centenary (and present) Secretary of the company reminded his hearers of the phrase in the paper which he gave recently to the Aldersgate Ward Club. The promoters of the G.W.R. looked to passengers to provide the greater part of the revenue and the receipts from that source were calculated to produce four times as much as from goods traffic. Actually for 25 years after the opening of the line the income from passengers exceeded that of merchandise, but since 1864 goods receipts have formed the major portion of the G.W.R. revenue. With passengers occupying such an important place in the company's early financial scheme it was therefore interesting to hear from Mr. Davis that the early first class carriages, which owed much in design to the road coaches they were destined to displace, were described by contemporary writers as being most comfortable and even luxurious. Some years were to pass before railways generally were prepared to concede comfort to the third class passenger and, although the original primitive G.W.R. vehicles were soon superseded by a carriage resembling a modern milk van with ventilators but no windows, third class luxury in 1845 consisted of iron-bodied vehicles with four-pane windows in the doors through which standing passengers might obtain a fleeting glimpse of the passing scenery.

* * * *

Erstwhile Third Class Manners

The reluctance of railway companies in early years to concede comfort to third class passengers (referred to in our previous note) was not entirely a matter of class distinction but was largely the result of experience. In the course of some evidence given before a House of Lords Committee in July, 1867, Mr. Archibald Scott, the Manager of the L.S.W.R., said that scarcely a day passed but his company had several carriages damaged by third class suburban passengers who cut the linings and fittings, broke the glasses, and destroyed the lamps. Mr. Myles Fenton, the Manager of the Metropolitan Railway, remarked "We have to carry so many mischievous people

that we are obliged to remove all straps from the third class carriages; we have carriages continually cut." Nor were these characteristics only of the cockney, for Mr. Seymour Clarke, General Manager of the Great Northern Railway, said of both London and Yorkshire local passengers, "These passengers, to whom no responsibility attaches, are very mischievous; they have no luggage, and there is nothing by which they can be detected; you would be astonished if you knew the amount of repairs we have to do resulting from pure mischief." During the summer of 1867, also, a guard was killed by being struck by a bridge while he was on the roof of a carriage endeavouring to detect passengers damaging the vehicle.

* * * *

An Interesting Steam Tug Experiment

On April 5, Richard Dunston Limited, of Thorne, near Doncaster, launched the first of two interesting steam tugs that are being built for the L.N.E.R. for towage work in the fish docks at Grimsby. The two vessels are being built to the same plans but one is to be fitted with the Kort system of propulsion, and, as the work of both tugs in identical conditions at Grimsby docks will be carefully recorded, it is expected that valuable data may be obtained. The Kort propulsion nozzle is a tubular arrangement built around the propeller which gives greatly increased power of propulsion. The interest of the experiment lies in the fact that this will be the first time that two vessels have been constructed to identical plans, the one with a Kort nozzle attachment and the other without. The tug not fitted with the Kort appliance will be provided with fire and salvage pump equipment. The L.N.E.R. has already in service at Lowestoft a tug named the *Ness Point* which was the first vessel built in Great Britain with the Kort system applied to twin screws. The *Ness Point* was designed to provide a pull of three tons for which ordinarily 300 h.p. would have been necessary, but by having the Kort nozzle, engines of only 180 h.p. were used and on trial a pull of 4·1 tons was obtained.

* * * *

"Accidents which Teach us Something"

The German State Railway has for some years paid great attention to staff education. An associated publishing concern has issued many excellent books on railway operation, several of which have been reviewed in our columns. There is also an official educational journal, *Der Eisenbahnfachmann*, now in its 14th year, which appears twice a month and is designed to help candidates for the examinations necessary for promotion. A valuable feature of the paper is the concise accounts of accidents under the title of this note. Only the essential facts are given, accompanied usually by a sketch; and names, both of places and persons, are suppressed. The sections of the rules involved in every case are quoted, with comments enabling readers to follow the course of events and to see what rules were infringed or misinterpreted. In this way the mistakes made by some are explained for the benefit and instruction of all. We must say that we think something of this sort should prove useful here, for although all accidents are publicly reported on at length, the essential facts are not condensed and circulated to everyone who might profit by them.

* * * *

The Coning of Wheels

In Sir Harold Hartley's paper to the Institute of Transport, which was summarised in our issue of April 15, he mentioned the investigations that had been made into the question of wheel coning. Normally wheels are coned to 1 in 20 to correspond with the cant at which rails are usually set, but at the higher speeds now so frequently run it has been found that a flatter coning, or even wheels turned cylindrically, appears to give steadier running. The high-speed electric trains of the Chicago, North Shore & Milwaukee Railway were found to travel more smoothly with cylindrical than with coned wheels, and on that system it is now understood to be the practice to provide passenger vehicles with cylindrical wheel treads. The oscillation trouble experienced in the early days with some of the high-speed American diesel railcars was also overcome by the use of cylindrical wheels on the trailing axles, and on the European Continent it is understood that 1 in 40 is now the generally favoured coning for such high-speed vehicles. On the L.M.S.R. carriage wheels are at present being turned with a coning of 1 in 100, and experience on the Coronation Scot shows that smoother running is obtained with such wheels than with those turned to 1 in 20.

* * * *

Nickel-Steel Tools

An interesting presentation recently made by the L.M.S.R. to the Science Museum, South Kensington, consists of a nickel-steel chisel driven cold through a $2\frac{1}{4}$-in. block of mild steel, without damage to the cutting edge. This gift has been made at the instance of Sir Henry Fowler, formerly Chief Mechanical Engineer of the L.M.S.R. The $3\frac{1}{2}$ per cent. nickel-steel chisel now presented was the outcome of extensive research in the works and laboratories of the old Midland Railway at Derby. After an exhaustive study of the possibilities of plain carbon steel, various alloy steels were investigated and ultimately a $3\frac{1}{2}$ per cent. nickel-steel, containing 0·38-0·42 per cent. carbon and a maximum of 0·6 per cent. manganese, was found to give the desired results. It was laid down that the material should require a simple heat treatment, without tempering, and that the edge of the chisel should be soft enough to be filed, thus obviating the need for regrinding. In selecting $3\frac{1}{2}$ per cent. nickel-steel, advantage was taken of the high work-hardening capacity associated with nickel-alloy steels. It is noteworthy that, for the years 1921, 1922, and 1923, the average number of carbon-steel chisels issued in the fitting shops at Derby was 18 per man per annum. In 1924 nickel-steel chisels were in use and this figure fell to 1·2 chisels per man per annum.

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Nourishing the Traveller

Having on a previous occasion introduced the holiday-time traveller on the multitudinous portions of the 10.45 night train from Marylebone to the North-East coast to a new kind of official, immortalised as the "Traveller's Friend," the L.N.E.R., perhaps wishing to help him to overcome his native reticence and confide in these unfamiliar acquaintances, announced that ninepenny cartons of food would be available for his nourishment this Easter. This showed the company was aware of the fact that a full stomach means a contented passenger and one that more readily supplies an answer to the questions crooned in his ear by his new "friend" as to the expected date of his return to London. What dainties these mysterious packets contained was not officially disclosed, but presumably the catering department rose to the occasion. In the future it might even attempt a little advertising for the company's system if it can successfully combine such assorted delicacies as Cambridge sausage, York ham, Edinburgh rock, and Banbury or Dundee cakes.

XUM

Ancillary Businesses of British Railways

WITH this issue of THE RAILWAY GAZETTE we begin our annual review of the seven ancillary businesses of the British railways. Four of these, namely, docks, steamboats, hotels and general catering, and road transport, are of a profitable nature and make valuable contribution to net revenue; the collection and delivery services result in a considerable loss but have an essential contributory value; canals are an inherited burden which, under present conditions, represent an inevitable loss; and air transport is still in its infancy and has yet to become a commercial proposition. As in the case of the railway business proper, the four first-named ancilliary businesses have benefited from the improved industrial conditions of the last two years and have shown considerable expansion. Last year, for instance, gross receipts from the docks, steamboats, hotels, and road transport activities of the four group companies amounted to £18,385,680, yielding a net profit of £2,420,127, compared with £17,070,291 gross and £1,867,608 net in 1936. Gross and net receipts for the individual groups were as shown below:—

Docks, Steamboats, Hotels, and Road Transport

	Gross receipts	Net receipts
	£	£
G.W.R.	3,421,650	416,338
L.N.E.R.	5,944,268	501,241
L.M.S.R.	6,100,067	761,808
S.R.	2,919,695	740,740
Total	£18,385,680	£2,420,127

It will be seen that the L.M.S.R. secured the greatest gross and net receipts, but the Southern must be credited with the best result, this company's percentage of profit to gross takings being 25 per cent. compared with 12½ per cent. in the case of the L.M.S.R.

The most remunerative of these four ancillary businesses last year was that relating to docks, harbours, and wharves, which forms the subject of the article on page 811 of this issue. Net receipts from this source for the four group companies amounted to £1,004,924 compared with £673,829 in 1936. It should be borne in mind, however, that railway capital invested in the docks undertakings amounts to the huge sum of £69,968,756, the return on which last year was only 1·4 per cent. Even the Southern, which achieved the best result, obtained a return of no more than 2·7 per cent. on its docks capital, while the L.M.S.R. secured only 0·3 per cent. On the other hand, railway ownership of the principal dock undertakings is obviously of great value to the companies in securing traffic to rail, and has a contributory worth which cannot be measured by the comparatively small return on the capital invested in the business. Another remunerative ancillary business is that relating to steamboats. Net receipts of the four groups from this source last year amounted to £710,807 compared with £432,011 in 1936. This improvement was due almost entirely to the big increase in the Southern profit which advanced from £101,059 in 1936 to £337,542 last year, principally as a result of the fall of the French franc and the incidence of the Coronation. Railway capital involved in steamboats, including marine workshops and plant, is £8,947,022, the return on which in 1937 reached the satisfactory figure of nearly 8 per cent. Hotels, refreshment rooms, and restaurant cars contributed £576,060 to the net revenue of the four groups last year, compared with £640,026 in 1936. The decreased profit from this source was due mainly to increased commodity and wages costs. It is not possible to say what proportion of the net receipts is attributable to the hotels section of the catering business, the capital expenditure on which now stands at £9,634,930. Road transport, as distinct from collection and delivery services, is a comparatively small business, but the net receipts last year amounted to £128,336, an increase of £6,594 compared with 1936.

Against the total profit of £2,420,127 from these four businesses there has to be set a loss of £1,211,413 (compared with £991,595 in 1936) on the remaining three businesses, namely, collection and delivery services, canals, and air transport, made up as follows:—

Collection and Delivery, Canals, and Air Transport

	Gross receipts	Net loss
	£	£
G.W.R.	1,054,051	269,254
L.N.E.R.*	1,399,295	416,371
L.M.S.R.	2,521,389	532,287
S.R.	547,561	6,499 *profit*
	£5,522,296	£1,211,413 loss.

* The L.N.E.R. is not directly interested in air transport

The collection and delivery services are so closely related to the railway business proper that they cannot be regarded as an ancillary business in the ordinary sense. They are essential to railway working, but as it is becoming increasingly difficult to include in the railway rates a sufficient margin to cover the cost of collection and delivery, it is not surprising that the loss on these services tends to grow greater with increasing traffics. Last year the deficit amounted to £1,095,279 compared with £901,922 in 1936. Railway-owned canals showed a loss of £64,666 last year compared with £48,731 in 1936, and the deficit on air transport amounted to £51,468 compared with £40,942 in the previous year. In the aggregate, the gross receipts from the seven ancillary businesses amounted to £23,907,976, and yielded a net profit of £1,208,714. The Southern, by reason of the fact that it is able to secure profits from its collection and delivery and canal businesses, claimed more than half of this profit, namely, £747,239 from gross receipts of £3,467,256; the L.M.S.R. obtained £229,521 from £8,621,456; the G.W.R. £147,084 from £4,475,701; and the L.N.E.R. £84,870 from £7,343,563.

* * * *

Railways and Air Travel

ON the report stage of the London Midland & Scottish Railway Bill in the House of Commons on April 6, certain amendments were proposed which would have forced the railway companies to allow their ticket agents to sell tickets for any independent air transport services. These clauses, which were in no way germane to the Bill, were ruled out of order, as was recorded in our issue of April 8. This action followed repeated attempts in the House in recent weeks to coerce the railway companies to grant this concession indiscriminately. Subsequently Sir Josiah Stamp, in a letter to *The Times* which we reproduced on page 765 of our April 15 issue, concisely and clearly explained the railway attitude. Briefly, the situation is that the railway companies, having paid large sums as commission to ticket agents, thereby assisting them to provide well-equipped offices at which the public can obtain railway tickets and detailed information as to railway travel generally, do not consider that new transport undertakings should automatically obtain the admittedly substantial benefit of this elaborate organisation. Where, however, it has been considered possible to arrange this without prejudice to railway interests, permission has been given to the agents from time to time to accept such bookings. Every case has necessarily to be dealt with according to the circumstances, and, with two exceptions, booking is now permitted in respect of all internal air lines which have applied for the facility.

The only other important case is that of the air services between Dublin, Liverpool, and London; and Dublin and the Isle of Man, which are operated by Irish Sea Airways under the ægis of the Government of Eire and an English company selected by that Government (Olley Air Services Limited).

Comprehensive evidence was submitted by the railway companies to the Cadman Committee on this matter, and the committee's report indicated that the question involved political aspects which were under consideration by the Government. It was suggested in the House of Commons, and subsequently in correspondence to *The Times*, that the railway companies were making a deliberate attempt to stifle the competition of air travel or, if that were not possible, to gain control of whatever air lines survived their hostile actions. It should be remembered, however, that the Maybury Committee, after taking considerable evidence from all interested parties, reported that it could see no signs of any such attempt. Moreover, the Cadman Committee reported that the railway companies were making a useful contribution to civil air development, having provided capital and experience in a proper and constructive manner under the authority of the powers conferred upon them. It is true that the Cadman Committee expressed the hope that every effort should be made to find a satisfactory solution of the difficulties in regard to the Eire service as soon as possible, and this view is shared by the British railway companies. The Maybury Committee Report of 1936 emphasised the importance of rationalising internal air services to meet the unfavourable conditions of commercial flying in Great Britain. This policy has been followed consistently by the railway companies, and as the result of negotiations with air transport companies, steamship companies, and others, rationalisation has been effected successfully in several cases, although the railway companies did not seek and have not obtained a controlling interest. Finally it may be added that the statutory powers granted to the railway companies in 1929 to operate air services contained the express provision that, if the Secretary of State for Air is at any time of opinion that the interests of the public as regards the development of air transport are being prejudicially affected by the exercise of these powers, he may direct that a public inquiry be held. If after such an inquiry he is still of that opinion, and the company declines to meet his wishes in the matter, the Acts provide that he shall report the circumstances to both Houses of Parliament.

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U.S.A. Railroads and the President

NEWS received during the last few days from the United States states that President Roosevelt has sent a message to Congress with a view to averting the continued tendency of drift and business recession. It contains a proposal to spend $5,000,000,000 (£1,000,000,000) in the next 15 months to put American trade on its feet again and increase relief. Of this sum, $300,000,000 (£60,000,000) are, he suggests, to be lent to railways by the Reconstruction Finance Corporation for the purchase of new equipment. In his message the President specially urges immediate action in dealing with the railway problem, and recommends that legislation be at once undertaken to prevent the serious financial and operating difficulties facing the railway administrations, until such time as the matter can be fully considered by Congress. Incidentally, he suggests that a new Federal department be created to deal with all matters relating to transportation, and that the Interstate Commerce Commission be reorganised on broader lines.

The message also emphasises the President's objection to Government ownership of and subsidy to railways, and with it he submits for the consideration of Congress the report of the special committee of the I.C.C., containing *inter alia* the following recommendations of which (1), (2) and (3) are for immediate relief, and the remainder long-term measures:—

(1) The $300,000,000 loans for equipment, which latter will be considered as security for the advances.
(2) Other forms of Government credit to be considered from the point of view of public policy.
(3) The establishment of special Courts for railroad reorganisation.
(4) The creation of a Federal Transportation authority for two years to effect amalgamation and ensure co-ordination.
(5) Extension of the I.C.C.'s authority in respect of pooling and approval of grouping of lines.
(6) The Federal Transport authority should concentrate upon economy research and the consideration of all forms of transportation with a view to eliminating destructive competition.

It is noteworthy that the committee is cautious, and does not feel justified in expressing an opinion for or against wage reductions. It urges the authority, however, to pay special attention to the financial abuses at present under investigation.

What will be the reaction of Congress to this message and the report is not yet obvious, though it seems certain that the spending scheme as a whole will meet with strenuous opposition; meanwhile Wall Street appears to have ignored the message. Senator Wheeler, Chairman of the Senate Interstate Commerce Committee, who wields considerable influence, is known to be averse to loans for the railroads, and is stated to have expressed the opinion that more lines would reorganise if there were no Government subsidies or unsecured loans; it is probable that many others share these views. On the other hand, Commissioner Eastman is the leader of those who are demanding greater Federal control of the railroads in order to secure a comprehensive programme of system grouping to ensure wholesale elimination of duplicate facilities. Mr. Wheeler's following, whilst also urging co-ordination, is not prepared to aid it by these methods, and it is these opposed principles that are likely to involve a battle royal before Congress decides what action it is prepared to take. So there seems no likelihood of an immediate decision such as the President urges and as is so vitally important to many of the bankrupt or nearly bankrupt railway companies.

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Railway Possibilities in a Bus Device

THE London Passenger Transport Board has adopted experimentally the automatic reporting of bus movements to a central control office, by induction between apparatus on the vehicles and pick-up coils at intervals along the route. The description of the system in our issue of March 11 suggests scope for similar principles in railway operating. As the signals from the vehicles can be arranged not only to indicate their progress, but to describe their route, it appears that such apparatus could be used to operate train describers from the trains themselves, according to class and destination. Signalmen would thus be informed of what train was coming without having to verify head signals, as is now necessary at many places. Alternatively, such apparatus could be used at specially important points simply to confirm bell signal descriptions, or show that a wrong one has been given. The automatic setting of junction points in advance of trains according to their destination might be realised by using something of the kind; or that device which several have sought—the tail signal detector—might be realised with its aid. Altogether, we think this apparatus has considerable and attractive possibilities in these and other directions.

XUM

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Reducing Coal Consumption

London & North Eastern Railway,
King's Cross Station, N.1,
April 7

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I am enclosing a leaflet which may interest you which has been issued in the North Eastern Area in pursuance of the efforts which are being made to reduce coal consumption.

LONDON & NORTH EASTERN RAILWAY
NORTH EASTERN AREA

THE FOLLOWING FACTS ABOUT COAL CONSUMPTION IN THE N. E. AREA HAVE BEEN PREPARED FOR THE INFORMATION OF DRIVERS AND FIREMEN, AND A COPY IS BEING HANDED TO EACH MAN WORKING ON THE FOOTPLATE SO THAT HE MAY REALISE THE IMPORTANCE OF AVOIDING WASTE OF COAL

1. **Coal is burnt in the fireboxes of the locomotives at the average rate of 50½ lbs. for every mile that a locomotive travels with a train.**
2. **The cost of 50½ lbs of coal (excluding all costs for haulage) is 4¼ pence.**
3. **The distance travelled by all the locomotives in one week is nearly 900,000 miles.**
4. **The cost of the coal now burnt in one week is £18,000.**
5. **For one year the cost is nearly £1,000,000.**
6. **The amount of coal in one shovelful is 12 lbs.**
7. **The cost of one shovelful is 1¼ pence.**
8. **For every mile the locomotive travels, 4¼ shovelfuls are burnt in the firebox.**
9. **By saving one lb. of coal every mile, which is equal to one shovelful saved every 12 miles, the saving to the Company would be £18,387 in one year.**

THERE ARE MANY WAYS OF SAVING COAL BETTER KNOWN TO ENGINEMEN THAN TO ANYONE ELSE, AND LARGE SAVINGS CAN BE MADE IF EACH ENGINEMAN WILL DO HIS BEST TO HELP IN REDUCING THE AMOUNT OF COAL BURNT BY THE ENGINES.

CHAS. M. STEDMAN,
Locomotive Running Superintendent.
YORK.

We feel that this leaflet has the merit of going straight to the point and, in the hands of the footplate staff, some good effect may result.

Yours faithfully,
E. G. MARSDEN,
Information Agent

Prevention of Engine Casualties

London Midland & Scottish Railway Company,
Advertising and Publicity Department,
Euston House, N.W.1
April 7

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—My attention has been directed to a paragraph in your issue of April 1, p. 651, under the heading of "Locomotive Cleanliness," in which it is suggested, *inter alia*, ". . . the L.M.S.R. has its On Time League, with trophies for operating efficiency. Why not a similar contest between locomotive sheds, in which both freedom from preventable casualities to locomotives and their internal and external condition would be taken into account?"

I would remind you that as part of the On Time campaign, the Chief Operating Manager of this company instituted in July, 1935, an inter-district competition known as the Motive Power League (for the reduction of engine casualties) which fulfils the very objective named in the first part of your suggestion. The rivalry so engendered between the various motive power districts and depôts throughout the L.M.S. system, together with the enthusiastic support of both the shed and footplate staff, has made this one of the most successful features of the On Time movement, and the Chief Operating Manager and the Superintendent of Motive Power regard this league as having played an important part in the L.M.S. Railway's success in the reduction of engine casualties.

There are 29 districts competing in the L.M.S. Motive Power League, points being awarded to each district in proportion to its success or otherwise in reducing debitable casualties during each four-weekly period. At the end of every twelve months the ten districts which have the highest aggregate scores are awarded shields, inscribed with the name of the district and the position which it has attained, and as an incentive to the staff these shields are displayed during the ensuing year at the various depôts comprising the district.

At the company's annual general meeting recently the Chairman, Sir Josiah Stamp, pointed out that during 1937 the number of locomotive casualties showed a decrease of 12·20 per cent. compared with 1936, whilst the engine mileage rose by 5,045,000 miles. As a consequence the miles per casualty increased by 16·83 per cent. Comparing 1937 with 1934 the mileage per casualty was greater by 78·31 per cent.

Yours faithfully,
G. H. LOFTUS ALLEN

[We are grateful to Mr. Loftus Allen for the opportunity to remind our readers of the L.M.S. Company's Motive Power League, to the purposes of which—and of similar movements elsewhere—we ventured to suggest the addition of rivalry in locomotive cleanliness.—ED., *R.G.*]

Financial and Operating Results of British Group Railways

36 and 37, Royal Metal Exchange,
Fisher Street, Swansea, April 7

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In your issue of March 25 you comment on the 1937 financial results of the British group railways, and state at the end of the article that the companies have failed to earn their standard revenues by the following approximate amounts :—

Southern	8 per cent.
L.M.S.R.	33 ,,
L.N.E.R.	30 ,,
G.W.R.	18 ,,

I make the L.M.S.R. and L.N.E.R. deficiencies to be respectively 30·2 per cent. and 33·6 per cent., and am wondering whether your figures have been transposed. My calculation of the deficiencies is based on the following :—

	L.M.S.R.	L.N.E.R.
Standard revenues and allowances to December 31, 1936	£ 20,579,930	£ 15,216,735
Net revenues for 1937	14,356,276	10,107,442

Yours faithfully,
J. B. JENKINS

[We thank our correspondent for drawing attention to the transposition of figures in our article.—ED. R.G.]

MOTOR CYCLE SALES INSPECTORS, N.W.R., INDIA.—The commercial sections of Divisional Offices on the North Western Railway, India, are to be strengthened by the appointment of Sales and Assistant Sales Inspectors, and three divisions will be equipped during April with trained personnel, whose duties will be to encourage travel by rail, and in particular to endeavour to recover traffic lost to the roads. The inspectors will have to watch road traffic and suggest means to combat it, and they are, therefore, encouraged to purchase motor cycles to be used for their work. Though there is no information to hand on the subject, it seems probable that this encouragement is supplemented by allowances (*a*) for the purchase of the machines, to be repaid by deductions from salaries over a considerable period, and (*b*) for cost of petrol and upkeep, unless such expenditure is covered adequately by the ordinary travelling allowance rules. In reporting this development, the *N.W.R. Magazine* illustrates a number of these Sales Inspectors on their new mounts.

XUM

PUBLICATIONS RECEIVED

The Railway Interrelations of the United States and Canada. By William J. Wilgus. London: Oxford University Press, Amen House, Warwick Square, E.C.4; New Haven: Yale University Press. 10 in. by 6½ in. by 1¼ in. 304 pp. Folding and other maps. Price 14s. 0d. ($3·00).—The story of the gradual linking of the two great railway systems of Canada and the United States, through the fifty "gateways" of their 4,000 miles of "unarmed frontier," is surely one of the most interesting chapters of railway history. To be told in full it must of necessity be rendered prosaic with a voluminous accompaniment of maps and statistics, but Colonel Wilgus has made it very readable, and in the effort he has given the world a volume which is exceptional in its matter and in its completeness. The author writes with all the authority of his own long technical and administrative experience in railway work, and with the advantage of a knowledge of comparative conditions in Europe, since he was responsible for the transportation service for the American Expeditionary Force during the war.

Beginning with a description of the physical characteristics of the North American continent, the book goes on to describe in some detail the evolution of the lines of communication and means of transport from the days of the earliest explorers to the advent of the steam locomotive and thereafter chronologically through the railway era to the present day. There follows a description of the principal engineering works that have been necessary to form some of the fifty "gateways," such as the bridge over the Niagara gorge, the Detroit tunnel, and so forth, while reference is made in passing, to the "battle of the gauges." After a description of the "gateways" in the North-Eastern, the Great Lakes and the North-Western zones, the book gives details of the mileage in relation to the population in the respective zones and in each country. The general adoption of three rates by all the railways, and the common user of rolling stock, have made them one so far as the interchange of traffic is concerned, and the "gateways" may be said to have served as eyelets in the lacing process. There is a difference between the two systems in that Canada operates 43,081 miles of line with 40 companies, while in the United States the 256,881 miles of the railway system are run by 700 companies. In Canada, with 4 miles of railway per 1,000 inhabitants, the ratio is approximately double that of the U.S.A. As the author says, Canada, with its superabundance of railways, has a hostage to fortune far greater than the United States.

The chapters on investment (or capital) and income give detailed statistics relating to the volume of traffic in both countries, and the financial position, but it is to be regretted that owing to the time required for the preparation of the book the latest figures quoted are those of 1933. Rates structure occupies a long chapter and some rather astonishing figures are given as representing the capital value of the taxation aid to the Canadian railways. This leads naturally to reflections on the possibilities of government ownership and operation. On this subject the author gives, in a brief appendix, his reasons for holding that logic points to the ultimate ownership of the railways of Canada and the United States by the respective governments. It is not so much that government ownership is preferable *per se*, he says, as that in the long run it is unescapable. But while public ownership may be deemed unescapable, public operation need not necessarily follow.

Wear of Rails on Curves, and Check-Rail Clearances Required on Curves of 4 deg. and Sharper. By A. M. Sims, B.Sc., A.M.Inst.C.E. Technical Paper No. 303, Railway Board of India. Copies obtainable from the Manager of Publications, Delhi. 55 pp. 9¾ in. × 6½ in. Price 2s. 6d.—In this paper the author considers the question of rail wear of curves of 4 deg. (about 22 ch. radius), and sharper, and suggests the extent to which such wear may be allowed with safety. The crux of the problem lies in the fact that on curves of this order most of the wear which takes place on the outer rail occurs in the form of sidewear, the amount of normal wear on the head of the rail being, as a rule, comparatively small. In the absence of definite instructions, the extent to which such wear should be allowed rests with the engineer or inspector who may be responsible for the safety of the section of track concerned, and this results in widely varying practices.

On track which is straight or curved to a large radius, rails need be removed only when the section has become so reduced as to be too weak to carry the maximum loads passing over them. At the present time in Indian railways a limit is fixed such that the maximum calculated stress in the rail does not exceed 14 tons per sq. in. When sidewear is present it becomes necessary to consider, in addition, the extent to which the widening of the gauge may be allowed, and also, where there is no check rail, whether the contour of the sideworn face is not such as will allow the flange of a wheel to climb and thus cause derailment.

Profiles are given showing suggested limits of wear considered from the point of view of strength and gauge, but it would appear that any possibility of climbing does not give rise to anxiety on the railways in question, presumably because the contours experienced do not exhibit this undesirable tendency. A noteworthy recommendation is that only one face of the rail should be worn, which is interesting having regard to the practice on at least some home railways of turning sideworn rails. On curves fitted with check rails the minimum and maximum flangeway clearances to be allowed are also discussed.

The author has dealt with the problem of railwear and check rails on curves in considerable detail, and the conclusions reached and the recommendations made are worthy of note. The fact that this matter has formed the subject of such detailed study naturally gives the impression that sidewear on Indian railways generally is a matter of considerable financial importance, and invites the question to what extent lubrication of rails on curves has been considered in India; for by this means sidewear on home railways has been so reduced as no longer to constitute a serious factor in the cost of track maintenance.

La Locomotive à Vapeur. By André Chapelon. J. B. Baillière et Fils, 19, Rue Hautefeuille, Paris, 6e.—The price of this volume, which was reviewed on pages 749-753 of THE RAILWAY GAZETTE for April 15, is fr. 350 and not as we previously stated.

Insulating Material.—A pamphlet received from British Insulated Cables Limited, Prescot, Lancs., enumerates some of the characteristics of Pernax, an insulating material manufactured by the company. Pernax, it is pointed out, is unaffected by normal weather conditions, and has therefore found extensive application in the form of tubes and mouldings for insulating and protecting overhead lines and associated outdoor apparatus. Pernax has the advantage of being readily moulded into any shape by an exclusive and simple process which does not require an expensive mould. The material may also be applied to metal surfaces in thin sheets as a protection against rust, or is available in the form of a plastic tape, when it may be wrapped on and consolidated by simple pressure of the fingers, forming a waterproof covering.

Canada for Holidays.—The Canadian Pacific Railway has issued a brochure, entitled "Canada for Holidays," which is profusely illustrated with numerous photographs and a coloured map, and clearly sets out in detail, with inclusive fares, a complete range of the company's Canadian tour programme. These special tours extend from 21 to 30 days, and are devised to enable visitors to Canada to enjoy in sufficient leisure as many as possible of the worthwhile holiday features of Eastern Canada, with the addition of a visit in most cases to New York and other cities of the United States. Included is an "Across Canada" tour which embraces a complete tour of the entire Dominion from coast to coast, and takes just seven weeks, or a well-planned trip to the Canadian Rockies can be enjoyed. Copies of the brochure may be obtained from all C.P.R. offices or local agents.

XUM

THE SCRAP HEAP

Small Voice (at ticket office window): "I want a ticket for little Brenda, please."

Booking Clerk (after hastily consulting reference books with no result): "And where the deuce *is* Little Brenda?"

Small Voice: "She's over there on the seat with young 'Orace."

—From "The Best Railway Stories," published by the Richards Press, Limited.

* * *

FIRST FOR THREE YEARS

The London Midland & Scottish Railway Company was fined £2, with £1 costs, by Mr. Griffith-Jones, the Marylebone Magistrate, on April 16 on a summons for using a locomotive engine which did not consume its own smoke so far as practicable. A solicitor prosecuting for the London County Council said the engines were constructed to consume their own smoke and if they did not it was the fault of an employee of the company. On this occasion an engine emitted dense, black smoke for two minutes between Kentish Town and Junction Road. The present summons was the first issued against the company for nearly three years.

* * *

CUSTOMS AT SOUTHAMPTON

Regarding the Customs examination nuisance at Southampton, may I suggest that, in the analogy of the action taken on the major European expresses, customs examinations take place on board between Cherbourg and Southampton, with a quayway check? At the present time U.S. immigration examination, by courtesy of the Canadian Government, takes place at Quebec before ships proceed upstream to Montreal. I further suggest that the English-speaking Union bring pressure to bear in the right quarters to get this change carried through.—*Mr. George Catlin, in a letter to "The Times."*

* * *

RAILWAY PIONEERS IN SOUTH AMERICA

Like Cecil Rhodes in South Africa, certain foreign pioneers played conspicuous roles in the early development of South America. Some were English, some Irish, some from the United States. There was William Wheelwright, a Yankee who founded the historic Pacific Steam Navigation Company, built railways, and had monuments raised in his honour; and Henry Meiggs, from California, who "flung the amazing Oroya Railway across the sky-piercing passes of the Peruvian Andes"; and the two Harmans of Virginia, John and Archer, of "Guayaquil to Quito" fame.

In that miraculous rail-laying task, they say fever took one human life for every tie laid through 50 miles of jungle. Both brothers were dead before this job was done, one killed by a landslide; but not before the hardest work was finished and the rails well on their way to lofty, isolated Quito, built like some other Spanish colonial towns, remote from risk of pirates and fever.

"Since 1862, when we sold our first engine to South America, we have had some odd adventures down that way," said an official of the Baldwin Locomotive Works. "Once a boiler fell overboard in rough Brazilian coastal waters; it lay under the sea more than 50 days before we could fish it up, with the help of divers.

"Back in 1878 we built a locomotive, the *John Lucas*, for the old Camden & Atlantic Railway. Somehow it got sold to an American who was mining gold in Dutch Guiana. His mine petered out. Long years afterwards, when the jungle guides of a New York architect exploring Dutch Guiana (Surinam) were cutting their way through vines and brush, they came upon an old engine. A plate on it read: 'Baldwin Locomotive Works, Philadelphia, 1878. No. 4287.' It was the old *John Lucas*!"—*Condensed from "The National Geographical Magazine."*

* * *

"STAGGERING" HOLIDAYS

In the recent discussions on the "staggering" of holidays stress has rightly been laid on the importance of the present school holidays in preventing the distribution of family holidays over the whole summer. In this connection it may be of interest to point out that the Public Schools Commission of 1864 found considerable variations of practice among the leading public schools. At that time some schools had only two holiday periods in the year, and there were substantial differences in the dates of the summer holidays at the different schools. Thus Eton had six weeks and four days at election; Rugby eight weeks just after Midsummer; Harrow six weeks from the last Tuesday in July or the first in August; Shrewsbury eight weeks in June and July; Charterhouse six weeks from August 12 or 13; and so on.—*Mr. J. A. R. Pimlott, in a letter to "The Times."*

* * *

POST OFFICE "GALLEY SLAVES"

Mr. H. J. Gregory, of Kingston, speaking at the conference of the National Federation of Sub-Postmasters at Ryde, Isle of Wight: "Sub-postmasters and mistresses give their services to the public from 9 a.m. until 7 p.m. It is a scandal that English men and women work for a miserable pittance of 10s. a week.

"It may be said that we are the Cinderellas of the Post Office, but Cinderella lived happily ever after. Sub-postmasters are not Cinderellas but the galley slaves of the Post Office." The conference demanded a minimum annual wage of £52.

[Yet some workers advocate railway nationalisation!]

It is interesting to note in connection with locomotives that Parliament has helped an after-dinner speaker 1861, 24 and 25 Vic. Chap. 70, sec. 13 says: "Nothing in this Act contained shall authorise any person to use upon a highway a locomotive which shall commit a nuisance."—*Dr. Leslie Burgin, Minister of Transport, at the Institution of Locomotive Engineers annual dinner.*

* * *

THE MERMAID OF ZENNOR

FOR when the Noospaaper Men do come
downlong to St. I'es for a bit o'
stay-stummick-like, or Crowst,
ef you mind to, or Luncheon, tes all wan theng,
to the G'eat Western Railway's
TREGENNA CAASTLE HOTEL

APERL 3, 1938

What's gooen to be broft to Taable?

First to begin, there'll be
a Fitty **BAASIN O' BRATH** all round, maade weth
LOPSTERS catched off **ST. IE'S**;
and next aafter that, a bra' nice
SAMMIN, took out o' the **TAAMAR REVVER**,
weth a hansem **SOSS OF CARNESH BUTTER**,
mulled-like, an' li'l' **SLEVVERS OF COWCUMBERS**, grawed in to **PENZAANCE**,
weth **NOO PETAATAS**, digged out
to **TREGARTHEN**;
and 'pon top o' they some
good oul'-fashen **CARNESH PASTIES**, and
ef you mind to, there's **FILLIT OF TROORAW BAIF**
for 'ee, an' long weth et a bra' foo
OYSTERS, now took up from **HELFORD REVVER**,
then there's a passel o' **SPRENG MABYERS**
from **TRELOYHAN**, rawsted, an' some
luvly **CARNESH BROCKLAW**, same like we
belong to send awaay uplong by the
G'EAT WESTERN RAILWAY,
and **MOUZEL TAATIES**, weth
SALLETS OF CRIPSY YOUNG LATTICE AN' RADESHES;
then for aafters there's goen to be
APPLE TART AN' CARNESH CRAIM
some rech traade, me decar,
and aafter that, ef you can clunk another didgan,
there's a cupple or three **BISKEYS** an' a
crum o' **CHAIZE** to top et all off weth.

Cover and contents of Cornish dialect menu for luncheon to the Press at the G.W.R. Tregenna Castle Hotel on April 3, (see our issue of April 8)

OVERSEAS RAILWAY AFFAIRS

(*From our special correspondents*)

NEW ZEALAND

Railway Improvements

The Railway Department has begun erecting new houses for its staff in various parts of both islands. The work will be spread over a period of three years and will cost £310,000. The bridging programme, which includes new bridges over the Rakaia and Rangitata rivers, is unusually heavy this year, the total estimated cost being £180,000. The department is co-operating with the Main Highways Board in a programme of eliminating level crossings. Under this heading the total expenditure in the current year is estimated at £600,000. The department's share is £100,000.

Grade Easements and Duplications

On the Midland line (connecting the east and west of the South Island through the Southern Alps) work has been in progress for some time on several grade easements, with the object of allowing increased train loads for eastbound traffic. The cost of this work will be about £35,000, but this expenditure will be amply justified by the gain in operating advantage and the reduction in haulage costs secured.

In the Dunedin District an important doubling work is under way to complete the duplication between Sawyer's Bay junction and Dunedin. This will greatly facilitate the working of the main line traffic, as well as that between Port Chalmers and Dunedin; it is estimated to cost £157,000.

NORTHERN IRELAND

Two Inquiries into the Transport Act to be Held

The debate [referred to in our issue of April 15—ED. *R.G.*] in the Northern Ireland Parliament on the private members' motion to hold one public inquiry instead of two, as proposed by the Government, into the operation of the Transport Act, ended with a division victory for the Government by 26 votes to 10, after the Prime Minister, Viscount Craigavon, had given an assurance that the findings of the McLintock Committee, which will meet in private, will be placed before the House in their entirety.

The Prime Minister then announced that Judge Thompson, Recorder of Belfast, would preside at the public inquiry. A White Paper would be issued, and there would be a full report of the proceedings of the McLintock Committee in exactly the same manner as on the report of Sir Felix Pole's Committee.

Opposition to the proposal for the second or McLintock Committee was based on alleged public suspicion of its private character, and upon rumours (*a*) that the Transport Board was going to seek further powers at the expense of the individual; and (*b*) that the railway companies were about to put forward proposals to take over the road transport. The public was said to be suspicious of any alliance between road and rail. This opposition was undoubtedly weakened by the Prime Minister's assurance mentioned above.

The Attorney-General said it had not been suggested that the technical and financial inquiry was unnecessary, nor was it suggested that the three eminent men who had consented to hold that inquiry were not absolutely competent to hold it. That inquiry was one that must necessarily be held in the way the experts preferred.

The Prime Minister said that he believed the Government's method would shorten the proceedings, because the expert committee would not be overburdened with trivial matters. The Government wanted to bring out nothing but facts, and to place the facts before the members of the House, and give the members the benefit of the best expert advice they could get.

ARGENTINA

New Argentine-Chilean Trade Agreement

A new commercial convention between Argentina and Chile, embodying a number of mutual concessions in regard to quotas and import duties, was signed in Buenos Aires on February 18. The agreement has been framed with a view to providing additional traffic for the Transandine Railway, which is to be rebuilt by the Argentine Government and purchased *ad referendum* to Congress. Under the terms of the new treaty, Argentine slaughter cattle will be allowed into Chile free of duty, either by the Transandine Railway or on hoof, from July 1 to December 31 of each year, up to a maximum of 60,000 head. There will be other concessions for the importation into Chile of other cattle and sheep. Reciprocally, the Argentine Government has agreed to reduce the duties on various kinds of Chilean dried vegetables and timber, iodine, sulphur, natural saltpetre, and various classes of sulphates. Both Governments undertake to facilitate the trade between the two countries.

The agreement regarding travellers' documents establishes that a *cedula de identidad*, or personal identification certificate issued by the police authorities, or an enrolment book will be sufficient for travellers of Argentine or Chilean nationality. In the case of foreigners residing more than two years in either country, a certificate of residence, in addition to the *cedula de identidad*, will be required. These new regulations became effective on February 25.

Funds for State Railway Construction

The Government has authorised the sum of $14,600,000 paper to be spent on extensions to the State Railways, renewal works, and the purchase of rolling stock during the first four months of the current year, distributed as follows:—

	$ Paper
New Lines—	
Pie de Palo-Mendoza ...	1,320,000
J. V. Gonzalez-Pichanal ...	1,490,000
Tostado-General Pinedo ...	685,000
La Paz-Feliciano-San Jaime ...	810,000
San Antonio-Viedma-N. Huapi ...	677,100
Metan-Barranqueras ...	120,000
Paraná-Maria Grande ...	250,000
Milagro-Quines	400,000
Salta-Socompa	55,000
Rosario de la Frontera-Antilla ...	50,000
Santiago del Estero-Rio Hondo ...	50,000
Federal-Concordia	20,000
,, Curuzu-Cuatia... ...	900
Leales-Rio Hondo	7,000
Total...	5,935,000
Buildings and renewals to track	8,360,000
New railcars	217,000
Surveys and land purchase	88,000
Grand total ...	$14,600,000

Accelerated Air Service between Buenos Aires and La Paz

As announced in THE RAILWAY GAZETTE of June 4, 1937, the Pan-American Grace Airways, Inc. have, since April last year, been operating a weekly service for passengers, mails and parcels between Buenos Aires, Cordoba, Tucuman, and La Paz (Bolivia), with intermediate stops at Salta, Uyuni, and Oruro. With the object of speeding up this service, the company has now been granted Government authorisation to make the trip direct from Buenos Aires to La Paz without, as previously, changing machines at Cordoba, but with an additional stop at Jujuy. The new service was inaugurated on March 2, leaving Buenos Aires at 12.35 p.m. and arriving at Salta (925 miles) at 4·25 p.m. Salta was left at 7.30 a.m. on the following day, La Paz (1,635 miles from Buenos Aires) being reached at 1.35 p.m. From La Paz the journey is continued to Arequipa (Peru), where connection is made with the company's service to the United States.

Government's Afforestation Plans

Legislation is foreshadowed in a message to Congress from the Ministry of Public Works proposing the drafting of new regulations for safeguarding the national forests against wanton destruction or wasteful exploitation. The message refers to the serious influence upon the climate of a wholesale deforestation extending over a lengthy period, especially in the western and central zones, which are gradually being denuded of this influence upon rainfall and protection against winds. In pointing out that more trees are also needed to bind the moving dunes and serve as protection against erosion by rivers in flood, the

message cites the case of the United States where a green belt is to be created in the Middle West, extending from the Canadian border to Texas. The Bill provides for the formation of a Forestry Department under the Ministry of Agriculture. It also prohibits the sale of any fiscal land with more than 50 per cent. of the total area covered with virgin forests; and rules that exploitation must be restricted within certain limits. In addition there is to be gradual replanting of zones where it is most urgently required.

BRAZIL

Disinfection of Animal Wagons

A Decree was signed on January 21 authorising all transport undertakings, whether State-owned or private, to make a charge known as a disinfection tax to meet the cost of disinfecting all vehicles used in the transport of live animals. The charge has been fixed at $300 (reis) a head for quadrupeds and $50 (reis) a head for bipeds, a minimum charge of $500 (reis) being applicable to consignments of fewer than ten of the latter species. Animals dispatched by the Government, and the smaller types of singing and ornamental birds are exempt from the tax. It is stipulated that the transport undertakings referred to must provide disinfecting installations of approved design at convenient places within a period of six months from the date of publication of the Decree, which, in turn, opens up a special credit of 165 contos to meet the expenses of the disinfecting posts on the Central Railway during the current year.

Railways in the State of São Paulo

The Federal Governor of the State of São Paulo has fixed expenditure on the railways administered by the State at 132,120 contos for the financial year 1938. This expenditure is based on estimated receipts amounting to 155,800 contos made up as follow:—

	Contos
Sorocabana Railway	135,000
Araraquara Railway	18,000
Campos do Jordão Railway ...	900
São Paulo and Minas Railway	400
Monte Alto Railway	200
Cantareira Tramway	1,300
Total	155,800

Viação Ferrea do Rio Grande do Sul

The official timetable for passenger trains on the Jaguary—Santiago do Boqueirão—S. Borja branch of this railway, the opening of which was referred to in THE RAILWAY GAZETTE of December 24, has now been published. Trains are scheduled to leave Santa Maria at 7.0 a.m. and arrive at S. Borja at 8.34 p.m., on Mondays, Wednesdays, and Fridays; the return journey is scheduled at 5.0 a.m. from S. Borja arriving at Santa Maria at 6.57 p.m.

In view of the fact that the extension of this railway between Pelotas, Santa Maria, Rio Negro, and Caxias is an urgent necessity, and bearing in mind the fact that the War Ministry has laid aside the sum of 6,000 contos for the commencement of the work, the President of the Republic has decreed that a second railway operating battalion be formed to take the work in hand immediately.

FRANCE

No Increase in Freight Rates

Rumours of another rise in freight rates have recently been current in trade circles, and have caused a stir in manufacturing and agricultural associations. When questioned on the subject, M. Boyaux, Commercial Manager of the National Railways Company, denied that any such proposal was under consideration. On January 1, he added, the general goods tariff had been raised by 25 per cent., while the rise for farm produce had been limited to 20 per cent. Freight rates had previously remained unchanged since 1928, and the recent advance had been necessary to offset the devaluation of the franc and the rise in cost of operation. Since January 1, the National Company had endeavoured to adjust details of the tariffs to facilitate the needs of commerce and industry in special cases.

Traffics in Current Year

Traffic receipts increased by about 29 per cent. in the first eight weeks of the year, compared with the same period in 1937, but the increase was not proportional to the rise in tariffs, as passenger fares had been augmented in two stages by 50 per cent.; both passenger and goods traffic fell off at the beginning of the year. In the last few weeks, the passenger traffic has begun to pick up again, but the goods traffic still lags behind, pending some improvement in trade. As the franc has continued to depreciate recently, it may be that the question of tariffs will call for further consideration if the next two or three months show no appreciable reduction in the railway deficit.

SWEDEN

Private Railways Revenues in 1937

According to a summary report just published, the past year has been the best for about 20 years for the private railways. Compared with 1936 the revenues rose by Kr. 11·2 million to Kr. 132·6 million, of which amount Kr. 37·9 million were derived from passenger traffic and 86·2 millions from goods traffic. Expenditure increased by Kr. 8·3 million to 101·4 millions. After deduction of maintenance costs, writing-offs, and reservations, the net profit amounted to Kr. 11·4 million (£627,100 at par) against 9·3 millions for the preceding year.

These private railways at present number 84, possessing 8,807 km. of railway line, or 53 per cent. of the whole railway system of the country. Of these companies 45 show profit and 39 loss on the past year's activity.

The largest private concern, the Trafikforvaltningen Göteborg-Dalarna-Gävle, operating a number of railways and bus lines in Central Sweden, reports total revenues for 1937 of Kr. 31·85 million. After deduction of working expenses amounting to Kr. 21·92 million, there remains a net profit of 8·6 millions (£473,000 at par) as compared with 8·3 millions in 1936. The revenues of the system from tourist traffic have increased considerably in recent years, several of its lines traversing some of the most attractive and frequented provinces, *inter alia*, Dalarna and Vermland.

PORTUGAL

The Railway Problem

The *Gazeta dos Caminhos de Ferro* publishes a series of articles reviewing the present railway situation in Portugal. The Portuguese companies called the attention of the Government years ago to the increasing difficulties caused by unrestricted road competition, coinciding with rising prices of fuel and materials and new labour demands and social legislation. The revision of the lease of the State lines was due in May, 1937, but nothing has been done. The advent of the heavy-oil motor a few years ago, unduly favoured by the import duties, enormously aggravated the injury to the railways, while the commissions that have been appointed from time to time have shirked the obvious solution, which can only be a revision of the licensing and taxation laws and a reform of the present conditions, which favour only a minority of irresponsible speculators, to the prejudice of the railways, the public, and the State. There are some 3,500 km. of railways now in operation, and their receipts are steadily diminishing. Passenger statistics for recent years, for the whole system, are as follow:—

	Numbers	Receipts (Contos)
1934	24,153,000	109,828
1935	24,748,800	109,133
1936	25,690,362	106,922
January to August 1936	16,833,880	69,870
January to August 1937	17,210,300	69,166

While the number of passengers shows an increase, the receipts steadily decline, owing partly to the larger proportions of lower class bookings, but principally to the reductions the companies have been forced to make in their fares, in order to retain traffic. Merchandise statistics for the same periods are as follow:—

	Tonnes	Receipts (Contos)
1934	4,484,650	189,348
1935	4,075,910	178,933
1936	4,255,826	180,239
January to August 1936	2,585,408	109,490
January to August 1937	2,669,187	108,512

Here again an increase in the volume of traffic is accompanied by a reduction in the amount of the receipts, due to the fact that the heavy freight, at low rates, continues to be carried by rail, while the richer classes of merchandise

are continually being diverted to the roads. Earnings steadily decreased from 1929 onwards, and, unfortunately, the Portuguese railways have not shared in the industrial recovery which followed the depression, and on the contrary the steady decline in receipts seems to continue. The figures as given in the *Gazeta* for recent years, compare with the last normal period of 1929 as follow :—

	Earnings Contos	Expenses Contos	Net Contos
1929	326,280	283,610	42,670
1934	299,794	257,240	42,554
1935	288,068	252,435	35,633
1936	287,161	251,331	35,830
Jan. to Aug.—			
1936 ...	179,360	—	—
1937 ...	177,678	—	—

Although the railways have so far succeeded in reducing their working expenses more or less in relation to the fall in receipts, this must have meant a restriction of the amount available for renewals and developments; it is doubtful how much longer this can continue. Recent increases in fuel costs and prices of materials will entail an addition of at least 18,000 contos to the operating expenditure for 1937, and, taking into account the rental payable to the State, the net earnings may be reduced to something like 12,000 contos, a figure quite insufficient to cover the financial charges. Faced therefore with a default either on the rental of the worked lines or on the financial charges, it seems that the Government will at last be forced to intervene practically and promptly, and introduce co-ordination.

POLAND-LITHUANIA

The Trans-frontier Railways

[An editorial note in our issue of March 25 discussed the general principles involved in the recent Polish-Lithuanian crisis and in the closing of the railways crossing the frontier between the two States since 1920. Our correspondent has sent us the following further details.—ED. *R.G.*]

Three standard gauge and one 2 ft. 6 in. gauge railway were affected by the closing of the Polish-Lithuanian "demarcation line" or new frontier in 1920. The most important standard gauge line connects Kaunas (Kovno) and Vilna (Wilno or Vilnius), is 61·4 miles long, and had previously also formed the main railway link between Lithuania and the U.S.S.R. This line has, since 1920, been worked only to Vievis station, 36·6 miles from Kaunas and 4·9 miles distant from the new frontier. On the Polish side, it joins the Vilna—Grodno—Warsaw railway at Lentvaravas, 8·7 miles from the border. The section between Lentvaravas and the frontier "demarcation line" had been abandoned.

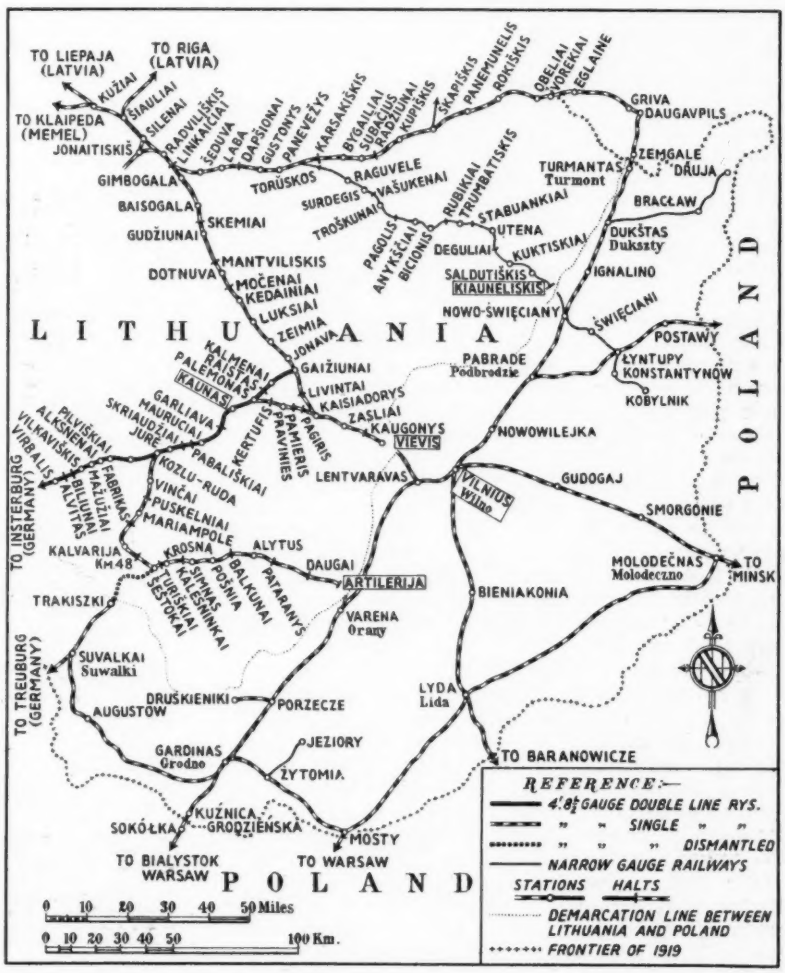
Second in importance is the standard gauge connection between Kozlu-Ruda —on the main line from Kaunas towards Germany—and Varena, also on the Vilna—Warsaw line. The temporary terminus of this railway has been at Artilerija, an ominous-sounding name for a place only 1·8 miles from the frontier. The distance from Kozlu-Ruda to Varena is 79·4 miles, and Varena is only 1·2 miles on the Polish side of the 1920 border; this length of line also has been closed.

The third standard gauge line branches off southwards from Šeštokai, a station on the Kozlu-Ruda—Artilerija section, to Suwalki, whence one branch runs to Treuburg in Germany, and the other to Grodno on the Vilna—Warsaw line. The section between Šeštokai and the 1920 frontier, a distance of 15·5 miles, had been dismantled. This line provided a useful alternative connection between Lithuania and East Prussia.

The 2 ft. 6 in. gauge line is farther north, and connects Panevezys—on the standard gauge line from Šiauliai to Daugavpils in Latvia—with Kiauneliškis, and Nowo-Święciany. Only the 78·2 miles from Panevezys to Kiauneliskis, which is quite close to the 1920 frontier, have been open for traffic since 1920, Nowo-Święciany is 4.9 miles on the Polish side of the border, and is a junction on the standard gauge Vilna—Daugavpils line. The narrow gauge railway continues farther into Polish territory to Kobylnik, and this extension has been working regularly.

Owing to the closing of these lines at the new frontier, passenger and goods traffic between Lithuania and Poland has had to make considerable detours. One of these detours was *via* East Prussia, and for passengers, involved from two to three changes of train; the other (the northern) detour, *via* Latvia, necessitated only one change at Daugavpils. For various reasons the latter route was preferred by passengers and for goods traffic, but involved several trans-shipments.

On the sections of the line closed to traffic on the Lithuanian side of the frontier, the permanent way was removed in 1920, and the formation has become overgrown. This is now being cleared preparatory to the reopening of the various transfrontier lines, though this could not be effected by March 31, as ordered in the ultimatum. [See also page 815.—ED.]



***Map showing Polish-Lithuanian connecting railways as disconnected since* 1920**
(Where two names are given the upper is Lithuanian and lower Polish)

FURTHER IMPRESSIONS OF OVERSEAS TRANSPORT

IV—The author describes how the New South Wales Railways have solved the problem of transport in the sparsely settled areas

By A. W. ARTHURTON, M.Inst.T.

THE Spirit of Progress arrived at Albury, the border station for New South Wales 190 miles from Melbourne, at 10.20 p.m. punctually. Here a change was made to the New South Wales "sleeper," which, though comfortable, was not so modern and roomy as the Victorian train. However, the section of the New South Wales Railways involved in the through services between Melbourne and Sydney has quite different and more difficult operating conditions compared with the Victorian Railways. For every full carriage on the Spirit of Progress, at least three sleeping cars have to be provided for the remainder of the journey to Sydney, and traffic from Sydney requires similar accommodation. The enterprise of the Victorian Railways in providing the Spirit of Progress has naturally resulted in a demand in the other States, particularly New South Wales, for similarly luxurious travel. Interstate traffic is important, but only represents about 5 per cent. of New South Wales railway business. Consequently the administration has directed its attention more towards development of railway transport in other parts of the State.

For half a century the far out-back areas of a territory three times the size of the British Isles have been served by steam trains for both passengers and goods. High speeds, as railway speeds are now reckoned, were impossible for a number of reasons. The diesel trains* now being put into service have opened a new chapter in the history of railway transport to sparsely populated portions of New South Wales, and it is perhaps singularly appropriate that this modern system of transport should be introduced in distant rural and pastoral districts of the Mother State of the Commonwealth. The provision of such trains will do much to alleviate the tedium of travel in these lonely, far-distant areas. The first of the four high-speed semi-streamlined diesel trains has been placed in service and consists of a motor unit, a parcels and luggage car, and three passenger trailer cars—one first class, one second class, and a buffet car. The passenger cars have a total seating accommodation for 56 first class and 106 second class passengers. The cars are of the saloon type, with large windows and reversible seats to enable the occupants to face in either direction. Each car has a centre aisle and an entrance vestibule at either end. Entrances can be made from rail or platform level. Toilet facilities are provided in the centre of each car.

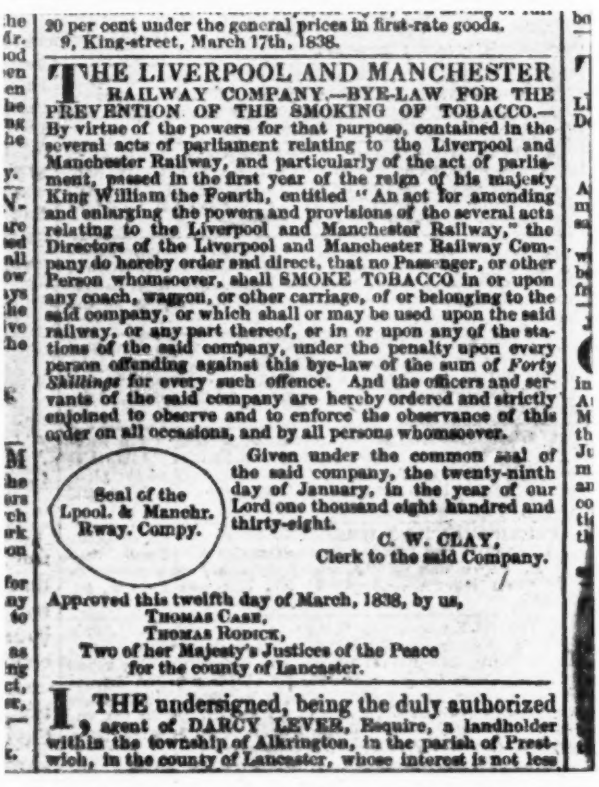
The motor unit is divided into three main compartments, with a driver's cabin at each end. A powerful headlight enables the driver to see the road ahead at night, and a vertical beam of light warns road traffic of the approach of the train at level crossings. Motive power is supplied by two eight-cylinder Harland & Wolff, two-cycle diesel engines, each developing 330 h.p. at 1,200 r.p.m. Two 32-h.p. four-cycle National diesel engines in the auxiliary engine compartment drive generators supplying current for lighting, air-conditioning, and the air-compressors for the brakes.

The first service instituted is between Parkes and Broken Hill terminus. Broken Hill (the silver city), the centre of one of the richest metalliferous mining fields in the world, is situated on the western edge of New South Wales, and is hundreds of miles from the thickly populated portions of the State near the coast. The Parkes—Broken Hill section of railway, 422 miles long, crosses millions of acres of sparsely settled sheep grazing country. A County Court judge told me that to get from his home in Sydney to his court in this district he had to follow his journey by train with another of 70 miles by car. The average rainfall of the district is light and the summer temperatures extremely high. Stopping places along the line vary from 10 to almost 50 miles apart, and by means of let-down steps entrance to or exit from the train can be made at places where there is no platform.

In addition to these diesel trains still greater comfort for passengers on branch lines is being provided by means of four up-to-date streamlined petrol motor trains. A complete train consists of a motor car and two trailers, but it is possible to use the motor units singly or with one or two trailers attached. Seating accommodation is provided in the motor car for 19 second class passengers. Four of the trailer cars seat 59 second class passengers each, and four are of the composite type with seats for 24 first class and 23 second class passengers.

Railbuses, designed to provide country services at lower cost but with a high standard of comfort, are also being introduced. They are streamlined, built of steel, and may be driven from either end.

* Described in *Diesel Railway Traction Supplement*, October 29, 1937, page 755.



20 per cent under the general prices in first-rate goods.
9, King-street, March 17th, 1838.

THE LIVERPOOL AND MANCHESTER RAILWAY COMPANY.—BYE-LAW FOR THE PREVENTION OF THE SMOKING OF TOBACCO.—By virtue of the powers for that purpose, contained in the several acts of parliament relating to the Liverpool and Manchester Railway, and particularly of the act of parliament, passed in the first year of the reign of his majesty King William the Fourth, entitled "An act for amending and enlarging the powers and provisions of the several acts relating to the Liverpool and Manchester Railway," the Directors of the Liverpool and Manchester Railway Company do hereby order and direct, that no Passenger, or other Person whomsoever, shall SMOKE TOBACCO in or upon any coach, waggon, or other carriage, of or belonging to the said company, or which shall or may be used upon the said railway, or any part thereof, or in or upon any of the stations of the said company, under the penalty upon every person offending against this bye-law of the sum of *Forty Shillings* for every such offence. And the officers and servants of the said company are hereby ordered and strictly enjoined to observe and to enforce the observance of this order on all occasions, and by all persons whomsoever.

Seal of the Lpool. & Manchr. Rway. Compy.

Given under the common seal of the said company, the twenty-ninth day of January, in the year of our Lord one thousand eight hundred and thirty-eight.

C. W. CLAY,
Clerk to the said Company.

Approved this twelfth day of March, 1838, by us,
THOMAS CASE,
THOMAS RODICK,
Two of her Majesty's Justices of the Peace for the county of Lancaster.

I THE undersigned, being the duly authorized agent of DARCY LEVER, Esquire, a landholder within the township of Alkrington, in the parish of Prestwich, in the county of Lancaster, whose interest is not less

Advertisement from the "Manchester Guardian," of March 17, 1838, of bye-law against smoking
(*See page 579 of our issue of March 25 last*)

A.T.C. TEST ON THE G.W.R.

59 *m.p.h.* 300-*ton train brought to a stand, with steam on, in* 900 *yards*

IN view of the attention now being focused on automatic train control, the following particulars of a test carried out on March 22 last on the Great Western Railway to demonstrate the working and safety of that company's system are of special interest.

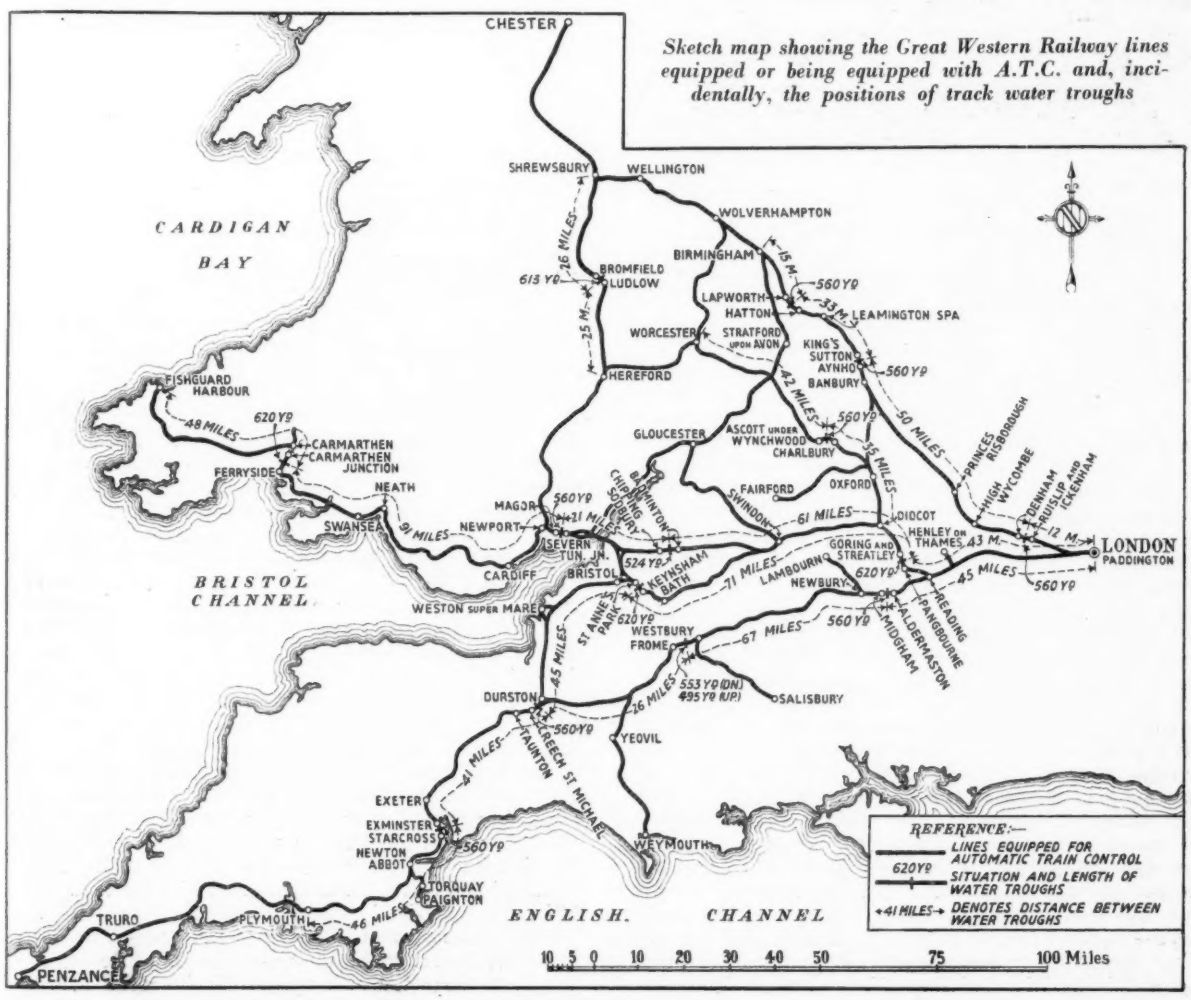
A special train was run from Paddington to Reading and back, and on the forward journey stops were made at Southall and Slough to enable observers to change to and from the engine for the purpose of seeing how the apparatus in the cab operates.

As previously explained in THE RAILWAY GAZETTE of December 31, 1937, the G.W.R. A.T.C. system is operated by contact between a T-section raised ramp in the four-foot way and an engaging contact plunger on the engine, which communicates with a receiving set in the cab. The latter gives distinctive acoustic signals, namely, a bell for "clear" and a syren for "caution," and with the latter, an automatic application of the brake.

The train consisted of the 4-6-0 "Castle" class locomotive No. 5055, *Earl of Eldon*, weighing, with tender, approximately, 126½ tons, and ten passenger coaches, weighing 304 tons. On the outward journey Waltham down main line distant signal was kept in the "caution" position, and it was arranged for the enginemen to ignore the signal entirely as if they were incapacitated—the regulator remaining open. The line for all practical purposes is level and the speed on passing over the "caution" ramp was 59 m.p.h. From the point of automatic application, the train, with steam remaining on, was brought to a stand in 900 yds. The relative distances involved are as under:—

1. Ramp to distant signal	318 yds.	
2. Distant signal to stopping point ..	582 yds.	
3. Ramp to stopping point		900 yds.
4. Stopping point to home signal ..		450 yds.
5. Ramp to home signal		1,350 yds.

The stop was a perfectly easy one; in fact, it was hardly realised by those in the train that an automatic stop was being enforced. The test was very exacting seeing that it was made with steam remaining on, but as will



Sketch map showing the Great Western Railway lines equipped or being equipped with A.T.C. and, incidentally, the positions of track water troughs

be noted from the foregoing figures, the train was stopped before reaching the home signal with 450 yds. to spare.

All the signals, cautionary and clear, were correctly received on the engine both on the forward and return trips, the latter touching speeds of slightly over 70 m.p.h.

Engine approaching A.T.C. ramp on a typical section of G.W.R. standard track

The following officials accompanied the train:—

Great Western Railway: Messrs. F. R. Potter, Superintendent of the Line; H. J. Peacock, Operating Assistant to Superintendent of the Line; C. T. Cox, Divisional Superintendent, London Division; F. C. Hall, Locomotive Running Superintendent; J. W. A. Kislingbury, Divisional Locomotive Superintendent; F. H. D. Page, Signal Engineer; G. H. Crook, Chief Assistant to Signal Engineer; H. M. Young, Assistant to Signal Engineer.

London & North Eastern Railway: Col. H. H. Mauldin, Superintendent (Eastern Section), Southern Area; Messrs. F. E. Harrison, Engineer, N.E. Area; C. Carslake, Signal Engineer, N.E. Area; R. Hart-Davis, C.M.E. Dept., King's Cross; C. M. Stedman, Locomotive Running Superintendent, York.

The following chronology shows the development of A.T.C. equipment on the G.W.R. system. The area equipped is also shown on the map overleaf:—

Section	Date
First introduced in actual service on Twyford to Henley branch (5 miles of double line)	January 1, 1906
Introduced on Fairford branch (25½ miles of single line), and semaphore distant signals removed	December 1, 1906
Reading to Slough (four-track section = to about 70 single miles)	1908
Slough to Paddington (four-track section = to about 70 single miles)	1912
Reading–Oxford–Swindon	1929
Old Oak Common–High Wycombe	1929
Swindon–Plymouth	1931
Swindon–Swansea	1931
Oxford–Wolverhampton	1931
Reading–Taunton, including Weymouth and Salisbury branches	1931
Birmingham, and Wolverhampton to Worcester, Hereford, Newport	1931
Oxford–Worcester	1931
Birmingham–Gloucester	1931
Swansea–Fishguard	1937
Wolverhampton–Chester	Nearly completed.
Plymouth–Penzance	In hand

The total track mileage on completion of the scheme will be 2,852 miles. A total of 3,250 engines will be fitted, and 2,114 ramps provided.

The Japanese Government Railways

Railway projects in Japan date from 1869, when the Government planned a trunk line linking Tokyo with Kyoto and Kobe, together with some branches to Yokohama and Tsuruga, a port on the Japan Sea. As a first step, half a million yen was allotted for the work between Shimbashi (Tokyo) and Yokohama, but the State treasury was not in a position to meet the outlay, and private capital declined to venture into a novel field for investment. At this time an Englishman named Horatio Nelson Lay came forward with a proposal to furnish the required funds. His terms were accepted and a Japanese loan for one million sterling was placed on the London market. With the arrival of a British engineering corps and material, the first sod was turned in March, 1870, on the 29-km. section between Shimbashi and Yokohama, and in November, 1870, on the 32-km. Kobe-Osaka section. The gauge adopted for these lines was 1·067 metres (3 ft. 6 in.), which later became the standard gauge of the Japanese railways. The work between Shimbashi and Yokohama was completed in September, 1872; the Kobe-Osaka line was opened to traffic in 1874, and its further extension to Kyoto in 1877. These sections have formed the nucleus of what now constitutes the Tokaido Line, one of the main arteries of railway traffic in Japan. In 1880, the Kyoto-Otsu section was completed, and in 1884 a further extension 42 km. long between Tsuruga and Nagahama (a town along Lake Biwa), was opened in pursuance of the railway idea of linking the Pacific and the Japan Sea. Meanwhile, a survey was made on the Otaru-Horonai section, in the Island of Hokkaido where colonisation work had been strenuously proceeded with; this 88-km. section was opened in 1882, thus bringing the total length of railways under Government ownership toward the close of 1884 to 185 km.

About this time the Government was involved in financial difficulties, and construction of State lines was practically at a standstill, except for a few extensions. It was then that private enterprise in railway construction was encouraged by the Government in the form of a subsidy. In consequence private railways were built in rapid succession, notable among them being the Nihon Railway, the Sanyo Railway, the Kyushu Railway, and the Hokkaido Colliery Railway. The total route length of these railways thus built by private capital in the ten years between 1881 and 1891 aggregated 1,874 km., a length more than double that of the State lines which did not exceed 887 km. by the end of 1891. Prior to this the Government decided to lay a trunk line through the Nakasendo, the old mountainous highway of Central Japan, but, in view of severe engineering difficulties along this route, it was subsequently abandoned in favour of the more level region of Tokaido. The work on the new route was finished in July, 1889, enabling a through service to be opened for the distance of 611 km. between Tokyo and Kobe. Then a branch to Yokohama was also opened, and a 161-km. section between Takasaki and Naoetsu was completed with the exception of 10 km. over the Usui pass. This difficult section, for which the Abt system was adopted, was not opened for service until 1893. Eventually, the acquisition by the State of the private railways was accomplished in October, 1907.

VARIABLE SPEED GEAR FOR RAILWAY SHOP MACHINERY

A continuously-variable cone drive which can be applied to machine tools of different types

MANY of the larger machine tools in railway shops nowadays have individual drive by electric motor, or are operated in groups from overhead shafting. In many cases countershafts are necessary to provide the desired speed range from standard speed motors, and it is to obviate the disadvantages of such layouts that certain types of what is known as the " H " gear have been developed by the firm of E. H. Jones (Machine Tools) Limited, of Edgware Road, The Hyde, London, N.W.9. There are various applications of this British-made gear,

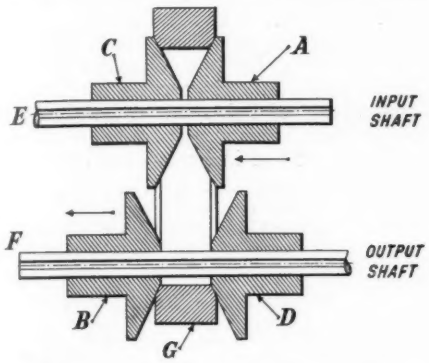


Fig. 1—Drawing showing gear in principle

the principle of which can be gathered from the accompanying sketch (Fig. 1). Two pairs of hardened and ground steel cones, *A*, *B*, *C*, and *D*, are mounted on two parallel splineshafts *E* and *F*, one splineshaft being the driver and the other the driven. To transmit the power, the cones are connected by a hardened and ground steel ring *G* with its internal edges machined to ensure perfect working conditions. Cones *C* and *D* are immovably fixed to their respective shafts, but cones *A* and *B* together with their bearings and sliding bushes are free to move on the splineshafts. They are interconnected so that when cones *A* and *C* move towards each other, cones *B* and *D* are separated to a corresponding degree.

By this movement the relative position of the ring changes. It may drive from the smallest diameter of one pair of cones to the largest diameter of the other pair, or *vice versa*. These are the extreme positions, but actually the ring can drive at any intermediate position between the two pairs of cones. Consequently the speed of the ring varies, and the speed of the driven shaft varies to a greater extent relative to the line of contact between the ring and the cones.

Fig. 2 shows the " H " gear column unit, which can be mounted either on a bracket fixed to the machine tool, or in the most suitable adjacent position on the floor. The drive is taken from the " H " gear pulley over the two adjustable jockey pulleys on the column direct to the largest pulley of the machine to be driven. The lever seen at the top of the column controls the speed of the mechanism, and consequently that of the machine tool itself. By the use of this unit, an otherwise out-of-date machine can be made to compete successfully with the latest corresponding type, especially if frequent speed changes are necessary. The single lever control of the " H " gear avoids errors which a multiplicity of control levers is likely to entail in the operation of modern machines. An application of particular interest is the use of the unit mounted behind the headstock of a capstan lathe, the belt from the drive pulley of the " H " gear passing over jockey pulleys to the largest step of the lathe headstock. The single lever control of the gear extends forward over the headstock, so that the control is in the easiest position for the lathe operator.

This unit has, in fact, a very wide field of application in all manufacturing plants, and no modifications are necessary in the machine tool to which it is fitted. Summarised, its advantages may be said to be: (1) That it

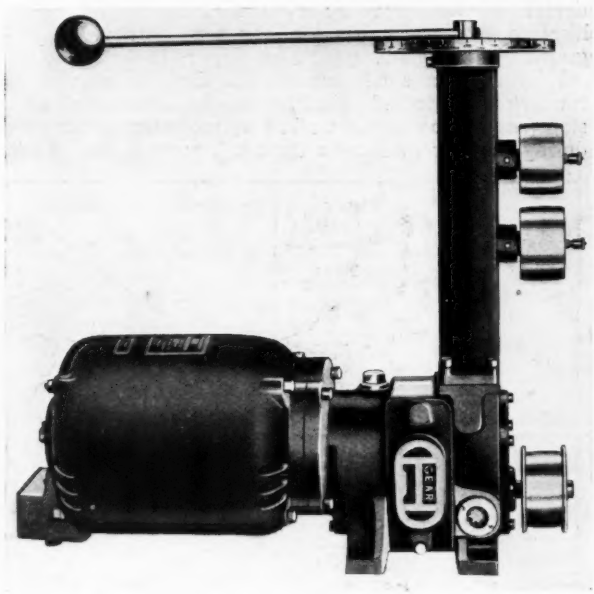


Fig. 2—The " H " gear column unit with controls

transmits the nominal h.p. capacity throughout the entire speed range; (2) it runs absolutely silently; (3) it is vibrationless in operation; (4) it is small and compact; (5) it covers wide speed ranges. Other characteristics are that speeds can be changed either whilst running or stationary, the gear can be used in any position, and it can easily be incorporated into any type of machine. An illustrated catalogue is obtainable from the maker of the gear, from which full particulars of the mechanism can be obtained.

L.N.E.R. BUYS COAL TO SAVE VIADUCT.—The L.N.E.R. is purchasing the coal underlying the Shay Lane viaduct, between Hare Park and Sandal stations on the main line from Doncaster to Leeds, in order to safeguard the stability of the viaduct. Colliery workings have for some time been approaching more closely to the line underlying this viaduct, and if the coal directly underneath had been worked a subsidence of 15 in. might have taken place which would have seriously impaired the strength of the viaduct, which is a large brick and stone structure of nine arches. To avoid this, the coal underlying an area of over 5 acres has been purchased.

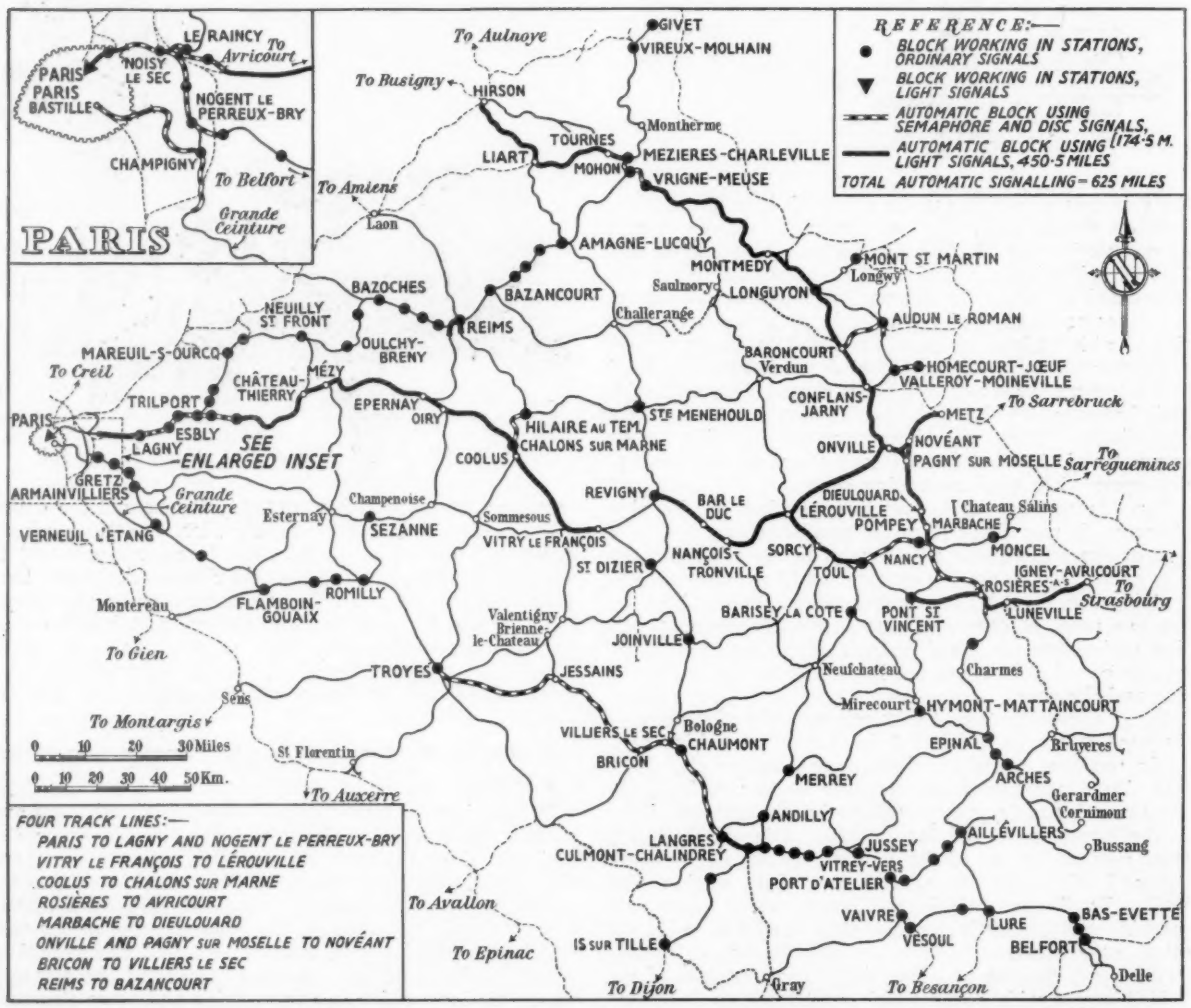
XUM

AUTOMATIC SIGNALLING ON THE EASTERN RAILWAY OF FRANCE

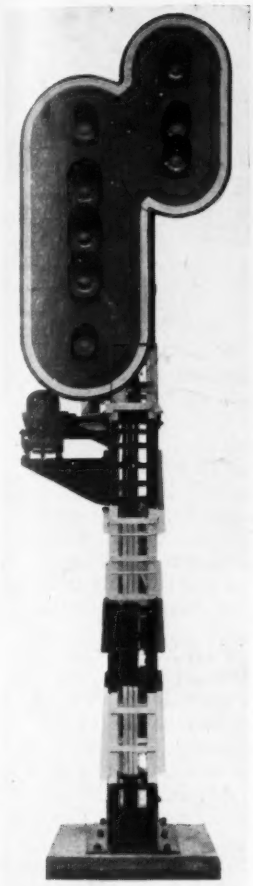
Over 600 miles of this important section of the French National Railways system are now equipped with automatic signals

ABOUT two years ago it was announced that the French Government had decided to grant the railways a sum of about £8½ million for signalling improvements; this was chiefly for the installation of automatic signalling, of which a large amount has since been installed, while continuous track-circuiting has been added to long lengths of line still worked by the manual block, in readiness for a change to automatic working in due course. By the courtesy of M. Vinot, Ingénieur Principal, Chef du Service des Etudes de l'Exploitation, Chemins de fer de l'Est, we are able to give the following particulars of the progress accomplished in the matter by his company, which has for long been particularly progressive in its signalling practice.

Except for a small experiment, the first sections of track-circuit automatic block, using the ordinary absolute stop (*carré*) type signals worked by motors, were installed during the war to shorten the block sections near Paris, particularly on the Marne viaduct at Nogent-le-Perreux; here a double track links two 4-track sections, and the object was to increase the capacity of the line without employing more signalmen, an impossibility at that time. Since then the company steadily extended the use of track circuiting, so that, for example, the entire main line from Paris to Belfort, 443 km. (275 miles) is now equipped, even on sections where the ordinary Lartigue electro-semaphore block remains in service. More automatic block working was gradually introduced—the first important section in 1922—wherever its adoption promised to bring advantages. Each section was protected by a "stop and proceed" semaphore (*sémaphore de couverture*), preceded by a disc type distant signal, or *damier*, now called *losange jaune* in accordance with the red, yellow, green system of lights introduced in 1937. Subsequently colour-light signals were adopted—the first on the Vincennes suburban line in Paris—and have since

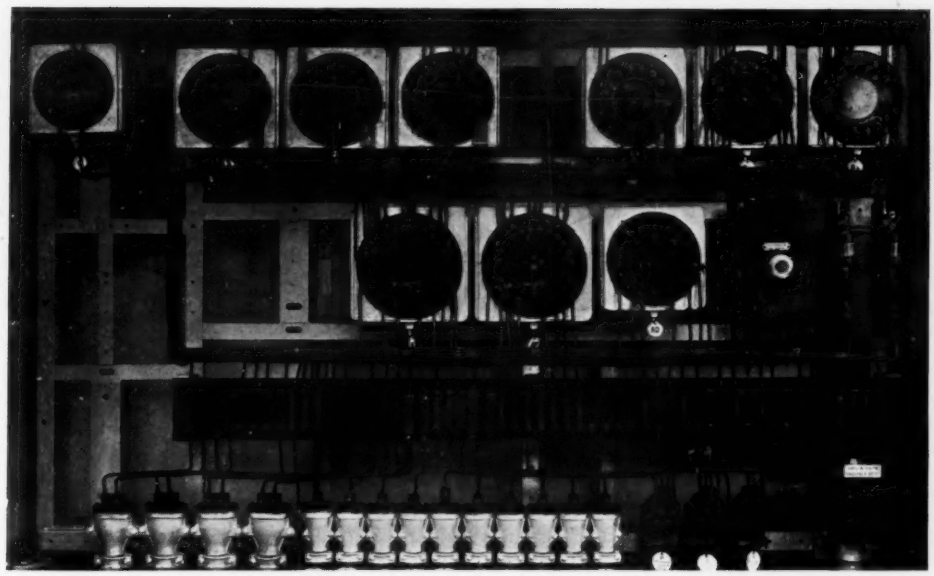


Map showing automatic block signals installed and in course of execution in the autumn of 1937



Left : Colour light signal arranged to give the following aspects :—

Stop (two red lights); stop and proceed, (one red light); caution (one yellow light); line clear, (one green light); reduced speed at next signal (two yellow lights, horizontally); reduced speed reminder (two yellow lights, vertically). Below on left lunar white marker illuminated when signal is working automatically

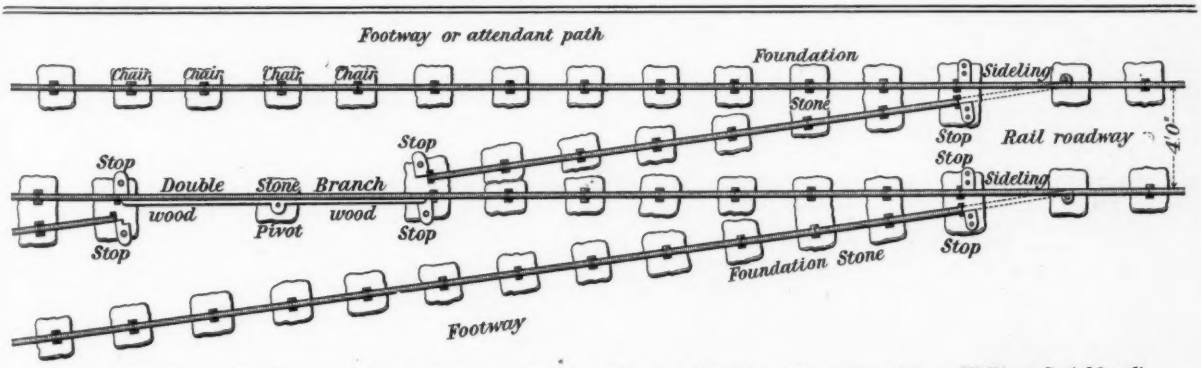


Above : Interior of relay case showing relays and cable ends

been made standard and put in on long lengths of line (see map). It is intended to adopt automatic signalling on about 50 per cent. of the double-track mileage, equipping 130 km. (81 miles) of route annually. The map gives the situation as it was approximately in the autumn of 1937, and the extent of the work done can be readily appreciated.

Continuous lighting of the signals is used on the 4-track sections, where a high-tension distribution cable exists parallel to the railway, and on some sections of double track, where the feed is taken from the station lighting circuits. For a considerable distance, however, primary battery lighting is used, with soda cells and approach control. All automatic signals have electric cartridge detonating machines which emit a loud report when a signal is passed at danger, unless the guard cancels the action by using a special switch, under the "stop and proceed" rule. In addition electric cab-signal ramp apparatus is provided, working in conjunction with the "caution," or other warning signal indications such as "reduced speed," with the customary paper band marking on the locomotive speed recorder, alarm whistle, and vigilance handle control. Through station, or other interlocking areas, of course, the signal boxes have control over the signals, which can then show the absolute stop indication as well as the purely automatic ones. Wherever necessary such controlled signals are fitted with telephones communicating with the signalman or station supervisor.

The "normal clear" system of control is used, with overlaps, and, as is very general in France, the proving of the operation of the signals behind every train. The company is entirely satisfied with the results obtained from the equipment, which affords greater safety than the old manual block, increases the track capacity, and, by simplifying the working, has enabled a number of economies to be made.



Early arrangement of permanent way to secure continuous rails at a junction. Reproduced from William Strickland's "Report on Canals, Railways, Roads, and other subjects" made to the Pennsylvania Society for the Promotion of Internal Improvement in 1826

ALUMINIUM IN ROLLING STOCK

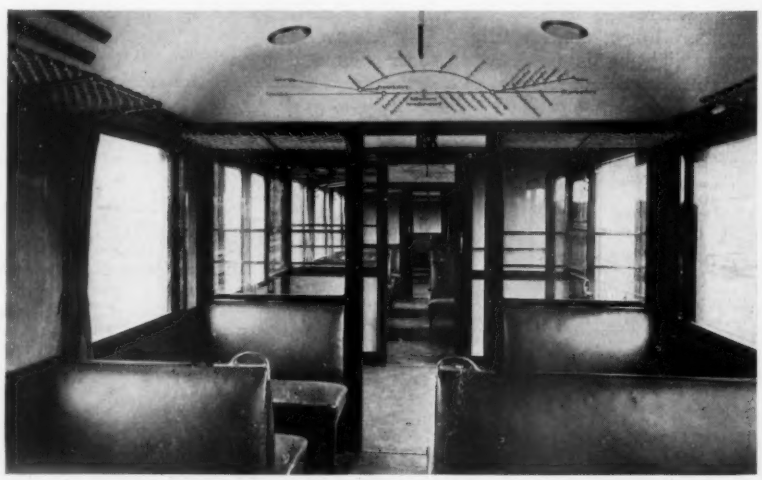
Recent examples of weight saving by the use of aluminium construction

MAINLY owing to its low specific gravity, about one-third that of steel, aluminium is now largely used in the transport industry. As compared with other materials, it has several advantages which have tended rapidly to increase its use in this field. Of these, its resistance to atmospheric corrosion and immunity from attack by many chemical compounds, and its shock-absorbing properties, are perhaps among the most important. The ease with which aluminium alloys may be extruded into sections of almost any desired shape makes it specially useful for the replacement of wood with a view to obtaining extra strength, whilst its non-inflammability and the fact that it can be finished in so many attractive ways for decorative purposes, are further points in its favour. The highly-polished surface-finish obtainable on aluminium panels and mouldings often eliminates the need for painting altogether, but where painting is desirable the paint film firmly adheres to aluminium.

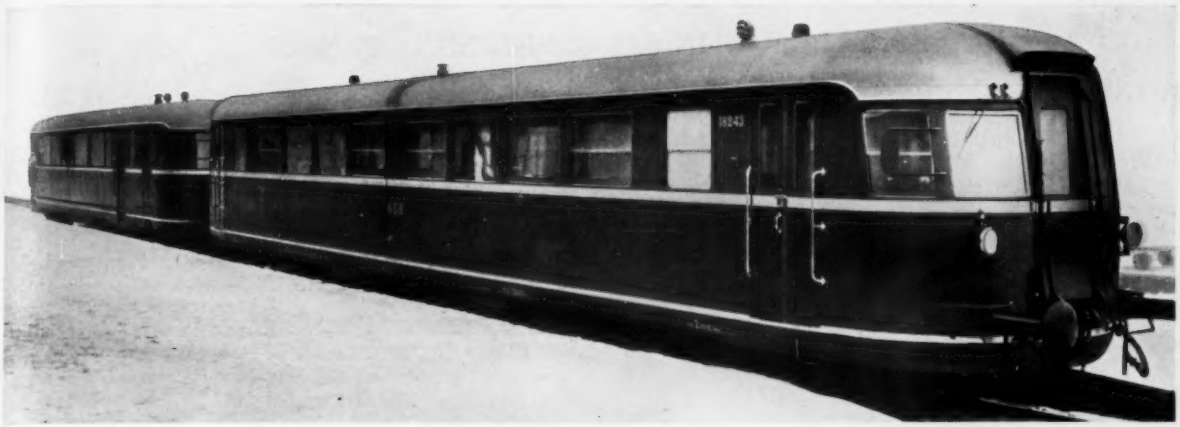
Aluminium has so far not been used for railway rolling stock to as great an extent in this country as abroad. The G.W.R. diesel railcars, are an example of the use of aluminium panelling, and in diesel railcars of the Northern Counties Committee, L.M.S.R., there is a still greater proportion of aluminium used, for not only are the panels, end plates, roof and floor of aluminium sheets, but pillars, cantrails and roof sticks are of the same material in the form of extruded sections. A weight reduction of nearly 10 tons is obtained in the N.C.C. cars as compared with a similar carriage of normal construction. In America, aluminium has been used for bogie construction as well as for the main coach structure. A Pullman coach has been constructed almost entirely of light alloys, and with internal fittings of aluminium which are of pleasing appearance, easy to clean, and fireproof. The Union Pacific Railroad is using probably some of the most advanced designs for lightweight rolling stock, and the company's articulated diesel trains, having large quantities of aluminium in the constructional framework and panelling, have proved the suitability of this metal.

The Danish State and the Norwegian State Railways have in service some notable lightweight vehicles in the construction of which aluminium has played an important part. The Danish vehicles comprise eight trailers for use in the Copenhagen electrified suburban services. The body framework together with the side and roof panelling, and the doors are of aluminium. Although the underframe, sides and roof were built as separate units they were assembled to form a girder all parts of which share in the load. The overall length and width of the bodies are 62 ft. and 9 ft. 10 in. respectively, and seats are provided for 70 passengers, standing room will accommodate another 31. The total tare weight of these vehicles, which contain 3¾ tons of aluminium, is 25½ tons, which compares with similar vehicles built of welded steel and riveted steel with respective weights of 28 and 34½ tons. These vehicles are designed to withstand a buffer load of 18 tons. They were put into operation at the beginning of 1937 and are reported to be still in excellent condition in every detail. The cars were built by the Scandia Works of Randers, and the aluminium of which they are mainly constructed, by the Nordisk Aluminium Industry of Copenhagen. The type of material used was heat-treated Duraluminium ST 17, which has an ultimate strength of about 4,000 kg. per sq. cm. (56,800 lb. per sq. in.) and an elongation of about 20 per cent. The Norwegian vehicles consist of three light trailers for use with diesel railcars running in the neighbourhood of Bergen and Trondheim. The principle upon which they have been designed is the same as that of the Danish cars and it is estimated that 2½ tons of aluminium replace directly about 7 tons of steel. In addition, owing to the lighter body, secondary weight savings in buffers, couplings and bogies were achieved, with the result that the total weight of the vehicles is only slightly over 16 tons for a seating capacity of 69 passengers. The overall body length and width of these cars is 59 ft. 6 in. and 10 ft. 2 in. respectively. The safe buffer load is 16 tons. For the fabrication cold driven heat-treated aluminium rivets were used. The Norwegian State Railways have subsequently ordered two additional identical trailers and three diesel railcars of similar construction.

As regards freight wagons, aluminium hopper cars have been used abroad for the conveyance of sulphurous coal where it has been found that the corrosion of steel has been unduly severe. Though in this case the object of using aluminium was not weight reduction but to combat corrosion, a saving in weight was obtained, and a car originally designed as a 55-ton hopper in steel is now of the 70-ton class constructed in aluminium, with extra space for the greater load but still carried on the same size of journals. The question of refrigerator vehicles is receiving much attention at the present time, and again aluminium, in the special form known as Alfol, is used as the insulating material. Layers of flat or crumpled aluminium foil are placed between an inner and outer shell of aluminium. Air cells are formed between the layers, which constitute one of the best means of preventing heat transfer. Added to this is the advantage of radiant heat reflectivity of the metal, a combination giving one of the best practical insulating materials known. Other points in its favour are that it is vermin proof and fireproof, does not absorb moisture or odours, and will withstand vibration.

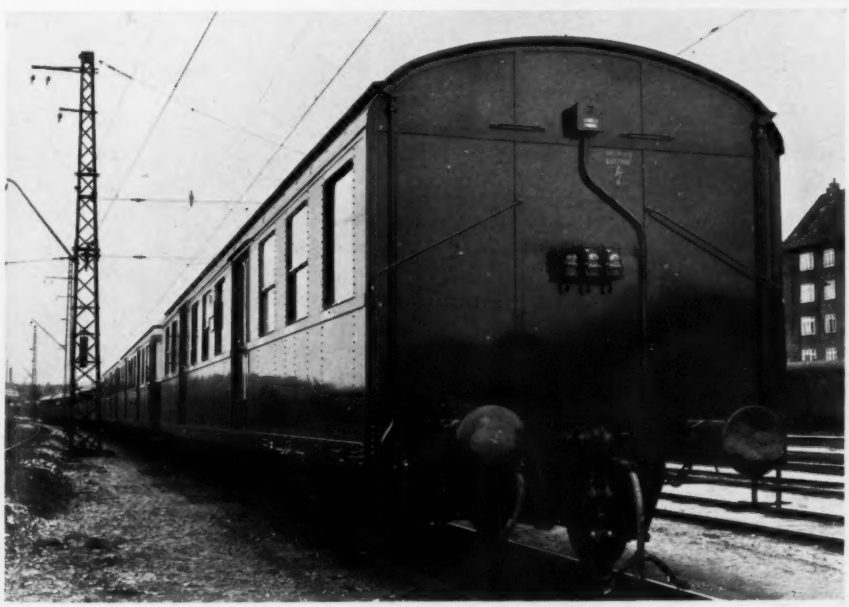


Interior of aluminium electric trailer car, Danish State Railways



Above : Light aluminium rail-car trailers, Norwegian State Railways

Right : Control cab end of aluminium electric trailer car for the Copenhagen suburban services of the Danish State Railways



Left : Opposite end of Danish aluminium electric trailer car shown above

ALUMINIUM IN ROLLING STOCK

(See article opposite)

SIGNALLING IN THE SIMPLON TUNNEL

WHEN the Simplon tunnel was opened—on June 1, 1906—it consisted of a single-track line worked from the first by electric traction. Considerable attention was paid to the signalling arrangements, and the following notes on the subject serve to amplify the brief details of the tunnel published on page 360 of our February 25 issue.

The original bore was 19,803 metres (21,656·84 yd.) long, and a passing station was provided in the middle, whence single line lock-and-block was worked to Brigue at the northern end and Iselle at the southern, the system being that generally used in Switzerland. An electro-mechanical locking frame, made by the oldest German signal works (at Bruchsal, Baden), was installed, with two rack-and-pinion type levers at one end for the loop points (which had trailable toggle locks) and at the other four miniature levers for signals, which were watertight boxes containing incandescent lamps behind coloured screens. The block apparatus came between, with the usual route-handles for operating the locking and signal selection. Stop signals had electric detonator placers. Treadle release was provided for the block, with full route and rotation locking, compelling all movements to be made in the proper order. The mechanism was specially designed to work in the humid atmosphere of the tunnel and was a fine piece of engineering. A model of it is, we believe, still to be seen at Bruchsal.

The second tunnel, which was brought into service on October 16, 1922, is slightly longer than the first, being 19,823 metres (21,678·7 yd.) in length. With the introduction of double-line working, modifications were necessary, and eventually semi-automatic intermediate signalling was put in, enabling the tunnel signal box to be switched out and used only in emergencies. The two stop signals thereat were then worked from Brigue as advanced starting and outer home signals, the sections between them and the tunnel mouths in rear being controlled by Zaugg's axle-counting apparatus, as steel sleepers were in use. The former passing loop points were padlocked as an additional security. The intermediate box can be brought into service if this equipment fails or if single line working becomes necessary.

Right: Team Valley Trading Estate Railway. Six months of hard work have seen the completion of the reinforced-concrete railway viaduct 240 yd. long over Kingsway, the main avenue of the Team Valley Trading Estate. It was designed by Professor W. G. Holford, A.R.I.B.A., and Sir Alexander Gibb & Partners. Altogether 9 miles of rail track have been laid on the estate to connect factories with the L.N.E.R. main line on the east boundary, where the trading estate maintains its private exchange sidings

Left: Interior of former six-wheel saloon coach of the Great Southern Railways (Eire), as converted for the service of refreshments on excursion trains. Two saloons have been thus treated, and are now known as "bar cars." The general finish is in mahogany and teak, with white enamelled ceiling. Floors and counter tops are covered with inlaid linoleum. Ventilation is by rotary air extractors in the ceiling. The external dimensions of the vehicles are 30 ft. long by 9 ft. wide

STORING TOOLS AND MATERIALS IN LOCOMOTIVE SHOPS

A recent inauguration at Crewe

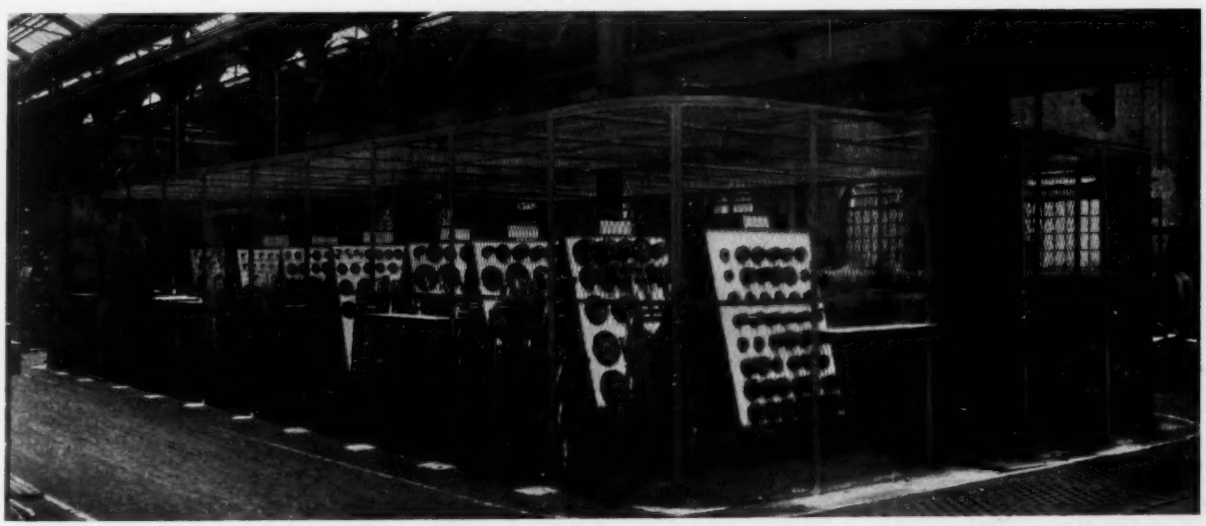
IT is very important in the interests of economy of time and labour, and to ensure system and orderliness, that the tools and materials used in locomotive shops should be stored and issued in accordance with a plan which checks the number and types of tools issued, and to whom they have been handed out. A recent inauguration in the machine shop at Crewe is the building of a central tool stores, and the photographs reproduced show the site before and after the store was built.

The classes of tools kept in this store comprise milling cutters, reamers, drills, special machine arbors, all classes of lathe tools and tungsten and high-speed steels. All milling cutters are hung on stands; every one is indexed, and a brass disc bearing the index number hangs on the peg supporting the cutter. Drills, classified in sizes, are contained in spring racks, and discs representing the sizes are, as before, hung on their respective pegs. Rosebits, cutter bars, and other items, are dealt with in a similar manner. Turning wheels are fixed in stands, but the types of tools are kept separate, and a disc corresponding to the type is fixed on the stands. A number board containing the operator's clock number is placed on one side of the stores, and the method of issuing is as follows:—

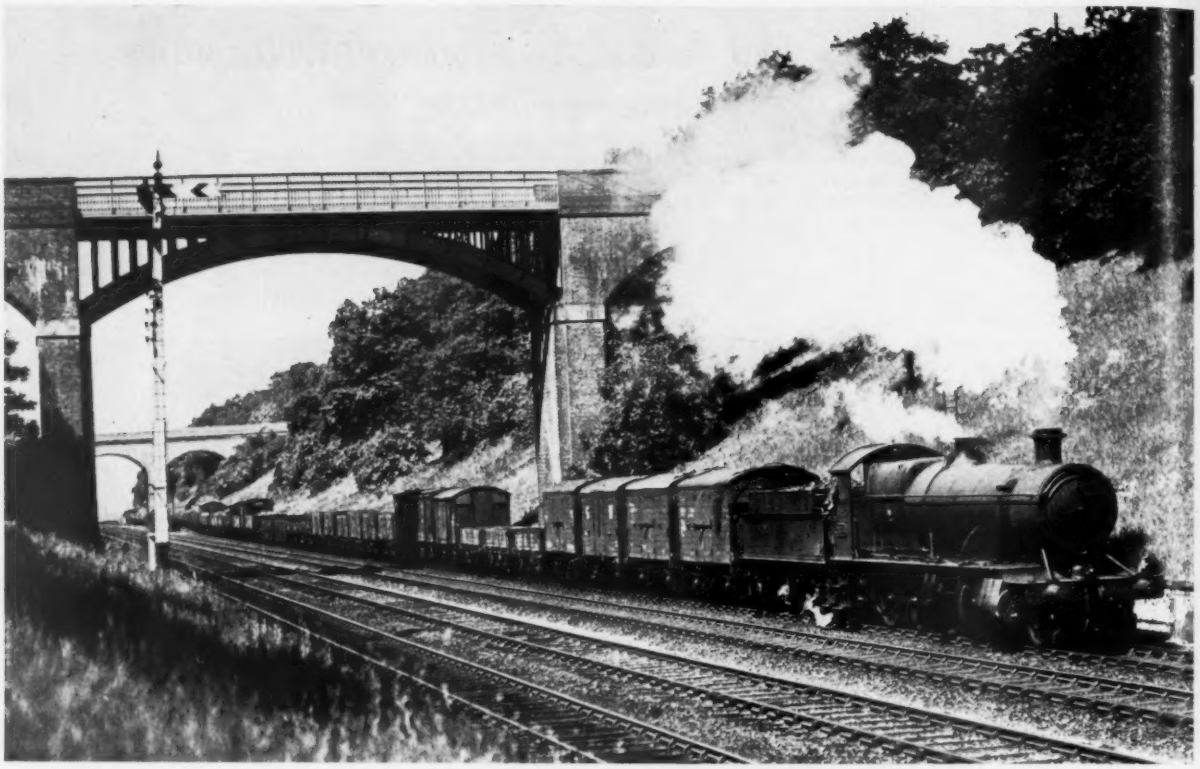
When a workman requires a tool, he gives his clock number and the name of the tool required to the storekeeper, who then goes to the board, takes a disc with the man's number from it, and places it on the hook or pin from which he takes the tool required. The disc removed from the pin, containing particulars of the tool, is then placed on the workman's number on the number board, and this ensures that at any time the tools can be located and traced to an individual, whilst the number and type of tools issued can be ascertained from the board.

When the tool is returned, the corresponding disc is removed from the number board in the man's presence, and placed on its respective peg or stand, together with the tool itself if in good order; the disc bearing the man's number is removed and refixed in position on the number board. Should the tool require sharpening or repair, it is sent to the tool-room, and in this case, a red disc is placed on the respective tool peg or stand. Since the inauguration of this centralised store, it has been possible to collect from the shops over 500 drills, in sizes ranging from $\frac{5}{8}$ in. dia. to $2\frac{7}{16}$ in. dia., and approximately 100 rosebits ranging from $\frac{5}{8}$ in. dia. to 2 in. dia. This enables stocks to be kept down to a minimum, and ensures a close check.

Site before inauguration of new tool stores



View of tool stores as now existing



Above : An up G.W.R. goods train in a well-known setting —Sonning cutting, to the east of Reading. Our illustration is reproduced from a photograph by Mr. M. W. Earley

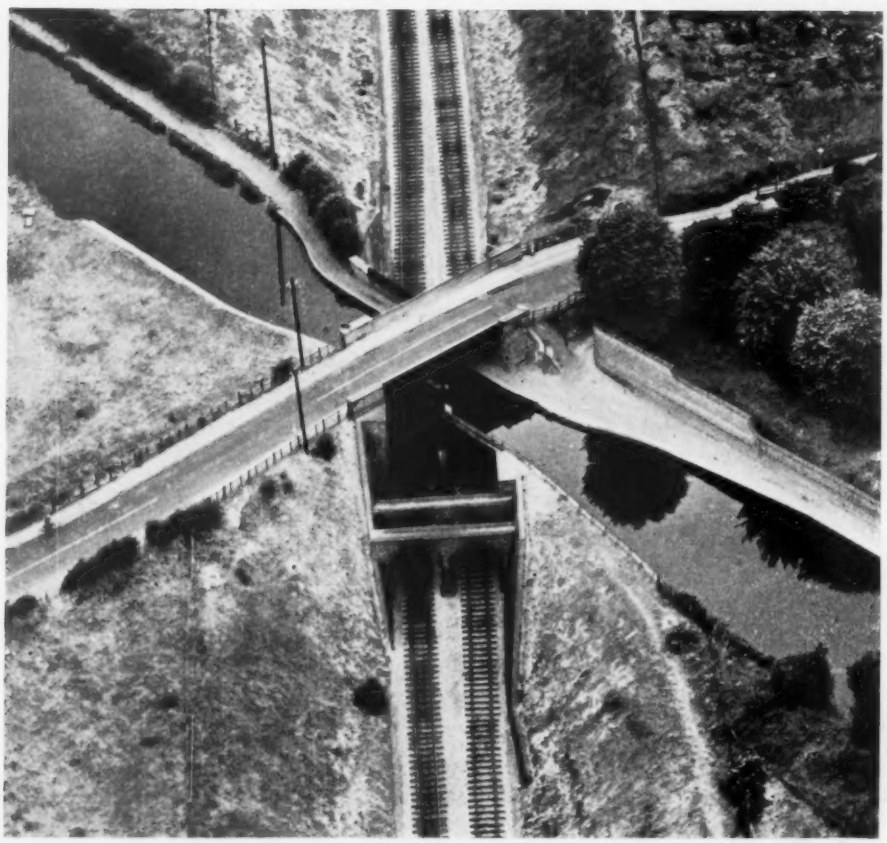


Photo by] [Aerial Photographic Co.

Left : An intersection of three transport systems near Southall. The bridge carries Windmill Lane over the Grand Union Canal and the G.W.R. Brentford branch. The height from rail to road is about 35 ft., and between the two the canal is carried in a cast-iron trough

RAILWAY NEWS SECTION

PERSONAL

Mr. H. C. King-Stephens, General Agent in France for the British railways, with offices at 12, Boulevard de la Madeleine, Paris, is to retire on April 30, 1938, and will be succeeded by Mr. A. M. Newbold, at present the Southern Railway Agent at Brussels.

Sir Maurice Brayshay, M.Sc.
Agent, Bombay, Baroda & Central India Railway, 1932-38

Mr. G. C. Laughton, A.C.G.I.
Appointed Agent, Bombay, Baroda & Central India Railway

Sir Maurice W. Brayshay, M.Sc., A.M.Inst.C.E., handed over charge of the duties of Agent of the Bombay, Baroda & Central India Railway to Mr. G. C. Laughton on April 9, as foreshadowed in our issue of April 15. Sir Maurice was educated at Ripon Grammar School and Leeds University, was appointed by the Secretary of State for India as an Assistant Engineer on the State Railways in 1905, and was posted to the Eastern Bengal State Railway. From 1909 to 1915 he was employed on the construction of the Hardinge (Lower Ganges) bridge, as Assistant and Executive Engineer, and was afterwards transferred to the North Western Railway as Assistant Agent, a post he held until 1917. During 1917-18 Sir Maurice was Deputy Controller and then Controller of Timber Supplies, Indian Munitions Board, but in the latter year was appointed Assistant Secretary to the Railway Board. In 1924 he was selected as Deputy Agent of the B.B. & C.I.R., a position he held until 1929, though he acted as Agent in 1927-28. In 1929 he became Engineering Member of the Railway Board, but upon the retirement of Sir Ernest Jackson in 1932, Sir Maurice succeeded him as Agent of the B.B. & C.I.R., the position from which he now proceeds on leave preparatory to retirement. He was, however, appointed to act temporarily as Chief Commissioner of Railways in 1933, and again in 1935, during the absence of the Chief Commissioner on leave. On March 31 last, he vacated the office of President of the Indian Railway Conference Association which he had held for the year 1937-38. It was in the King's birthday honours list in 1934 that he received his knighthood. As well as being a Master of Science and an Associate Member of the Institution of Civil Engineers, he is a Member of Council of the Institution of Engineers, India.

Mr. G. C. Laughton, who, as announced in THE RAILWAY GAZETTE of April 15, succeeded Sir Maurice Brayshay as Agent of the Bombay, Baroda & Central India Railway on April 9, was born on January 26, 1887, and educated at Seafield Park College. In 1906 he passed into the City and Guilds Central Technical College, South Kensington, and graduated as A.C.G.I. in 1909. During the succeeding year he gained practical experience under the Chief Engineer of the former London & South Western Railway, and in October, 1910, was appointed by the Secretary of State for India to be an Assistant Engineer in the Railway Branch of the Indian Public Works Department, now the Indian Railway Service of Engineers. Until 1919 Mr. Laughton was employed on survey, construction, and open-line maintenance work on the former Oudh & Rohilkhund (State) Railway—now part of the East Indian system—during the latter part of this period as Executive Engineer. From 1919 to 1921 he was Personal Assistant to the Chief Engineer, and was then selected as Superinten-

dent of the Kalka—Simla Railway, the position he held until 1925. On transfer to the North Western system, he was appointed Divisional Engineer (1925-26), prior to being promoted Divisional Superintendent in the latter year. After being Superintendent of Works in charge of surveys and constructions for a short time, Mr. Laughton was appointed Deputy Director of Civil Engineering with the Railway Board in 1929, and in 1931 was promoted to be Director. Following a short period as Secretary to the Railway Board in 1932, he was appointed Senior Government Inspector of Railways, Circle No. 7, Madras, with headquarters at Bangalore, the post he recently vacated to go to the B.B. & C.I.R., as Deputy Agent.

Mr. A. B. MacLeod has been appointed Assistant Stores Superintendent, Southern Railway, as from April 1, in succession to Mr. A. P. Innocent, whose retirement was recorded in our issue of March 11. Mr. MacLeod was educated at Cheltenham College, and entered railway service as a pupil under Mr. L. B. Billinton of the former London Brighton & South Coast Railway at Brighton Locomotive Works in May, 1919. After receiving training in the workshops, drawing office and running sheds, he was appointed Assistant District Locomotive Running Superintendent at Brighton, Southern Railway, in 1923. In 1925 he was appointed Assistant to the Eastern Divisional Locomotive Running Superintendent at Waterloo, and in 1928 went to the Isle of Wight as Assistant to the Chief Mechanical Engineer and Locomotive Running Superintendent in charge of the running and maintenance of the locomotives and rolling stock on this section of the Southern Railway. Mr. MacLeod was appointed Assistant for the Isle of Wight in January, 1930, being responsible to the Divisional Operating Superintendent, and Divisional Commercial Manager, as well as to the Chief Mechanical Engineer and Locomotive Running Superintendent. In May, 1934, he was appointed Assistant Western Divisional Locomotive Running Superintendent at Waterloo, and in April, 1936, was appointed Assistant to the Locomotive Running Superintendent, which position he held until January this year, when he was transferred to the Stores Department as Assistant to the Stores Superintendent.

Mr. A. B. MacLeod

Appointed Assistant Stores Superintendent, Southern Railway

Mr. H. C. King-Stephens

General Agent in France for the British railways, 1935–38

Mr. A. M. Newbold

Appointed General Agent in France for the British railways

Mr. H. C. King-Stephens, who, as announced on p. 807, is retiring from the position of General Agent in France for the British railways, was educated at Bradfield College, at the Lycée Carnot, Paris, and at the Grossherzogliches Gymnasium, Eutin, Germany. He entered the Continental Department of the London Chatham & Dover Railway in 1897 and was transferred to the General Manager's office in 1911. During the war he served with the British Military Railway Mission to Russia and Roumania, 1917-19, and was promoted Captain in 1918. He was decorated with the orders of the Crown of Roumania, the Star of Roumania and of Stanilas (Russian). In 1919 Mr. King-Stephens was appointed Secretary to the Commission for the Subdivision of Rolling Stock of the late Austro-Hungarian Monarchy in Vienna, under Sir Francis Dent, and in the following year became South Eastern & Chatham Agent for Germany in Cologne. It was in 1929 that he was appointed Southern Railway General Agent for Germany and Belgium in Brussels, which position he vacated in 1935 to take up that of General Agent in France for the British Railways, with office in Paris. Mr. King-Stephens holds the Belgian decorations of the Order of the Crown (awarded in 1917) and Order of Leopold (awarded in 1934).

Elliott] *[& Fry*

The late Major F. G. Wright

Chief Assistant to Chief Mechanical Engineer, G.W.R., 1903-22

Mr. A. M. Newbold, who has been appointed General Agent in France for the British railways, in succession to Mr. H. C. King-Stephens, joined the Audit Office of the South Eastern & Chatham Railway in 1912, but was soon transferred to the office of the Superintendent of the Line. From 1915-19 he was on military service, after which he was attached first to the Boulogne-sur-Mer and then to the Dunkerque office of the Richborough Train Ferry and Barge Service for evacuation of war material under joint arrangement between the S.E. & C.R. and the

Ministry of Munitions. In 1920 Mr. Newbold was transferred to the S.E. & C.R. Brussels Agency, where he became Chief Clerk three years later under Southern Railway auspices. In 1929 he was promoted to be Assistant General Agent, Brussels, and was made Agent General for Belgium in 1935, from which position he comes to his new post in Paris. Mr. Newbold holds the Order of Chevalier of the Crown of Belgium.

We regret to record the death at Swindon on April 7, at the age of 76, of Major F. G. Wright, M.I.Mech.E. who retired on August 12, 1922, from the position of Chief Assistant to the Chief Mechanical Engineer, Great Western Railway. Major Wright joined the G.W.R. as an apprentice in the locomotive shops at Gloucester in July, 1876, under his father, the late Mr. T. H. Wright (one of the original pupils of Sir Daniel Gooch). In August, 1879, he was moved to Bristol, and three years later transferred to the drawing office at Swindon, where he became Chief Draughtsman in 1892. In 1896 he was made Assistant Manager of the locomotive works at Swindon, becoming Manager in 1901, and Chief Assistant to the Chief Mechanical Engineer in 1903. Major Wright took a keen interest in public life, and was a former Mayor of Swindon and also a Member of the Wilts County Council. His interests extended besides to the Territorial Army, and he was instrumental in raising from the G.W.R. works at Swindon the Fortress Company of the Royal Engineers. From 1903 until his retirement Major Wright was responsible to the Chief Mechanical Engineer for over twenty new engine sheds and locomotive depots, including Old Oak Common (London), Banbury, Tyseley (Birmingham), Oxley (Wolverhampton), Penzance, Newport, Aberbeeg, and Carmarthen. He also devoted particular attention to the company's crane equipment, and was responsible for the design and equipment of hydraulic plant, including the installation at King's Dock, Swansea, and water supplies throughout the line. (See also page 785.)

We regret to record the death, on April 6, of Mr. J. R. D. Glascott, C.I.E., who retired from the position of Agent of the Burma Railways in 1934. Born on June 10, 1877, and educated at Bedford Grammar School, he was appointed a temporary Asssistant Engineer on the Indian State Railways in January, 1904. He was transferred to the permanent cadre in June of the following year, and became Signal Engineer of the Burma Railways in November, 1908. In March, 1915, Mr. Glascott was appointed District Engineer, and in September, 1917, was promoted to be Deputy Chief Engineer of that system. In November, 1919, he became Chief Engineer, and in the following March succeeded Mr. H. B. Huddleston as the chief executive or Agent of the railways. He received the honour of C.I.E., in January, 1926, and retired after 14 years as Agent in April, 1934. Mr. Glascott was part-inventor of the Simplex system of key-lock interlocking of single line stations, which is still standard on most of the Burma Railways main line. Whilst Agent, he was also a Port Commissioner of Rangoon, Municipal Councillor, and a member of the Rangoon Chamber of Commerce. Thanks to a fine physique, he was an outstanding athlete and fine sportsman in every sense of the word.

Mr. T. C. Thompson, General Manager of the Taltal Railway, has returned to Chile, after a vacation and visit to England.

Mr. G. V. Bernays, Traffic Superintendent of the Central Uruguay Railway, arrived in England on leave on April 19.

L.N.E.R. Appointments

The L.N.E.R. announces that the following appointments have been made:—

Mr. H. W. Green, District Electrical Engineer, Newcastle, to be Assistant Electrical Engineer, North Eastern Area, in succession to Mr. G. L. Drury, who retired from the service on April 9.

Mr. A. K. Terris, Engineer's Office, Edinburgh, to be Assistant District Engineer, Leeds.

Lord Trenchard, Marshal of the R.A.F. and ex-Commissioner of the Metropolitan Police, who was recently elected a Director of the Rhodesia Railways Limited, is at present visiting Rhodesia to study African transport problems. His tour, which is mainly by air, also includes the Belgian Congo, the Cameroons, and Nigeria.

Mr. J. A. Goudge has been elected Chairman of the Buenos Ayres & Pacific, the Argentine Great Western, and the Villa Maria & Rufino Railway Companies in succession to the late Viscount St. Davids, whose death on March 28 was recorded in our issue of April 1. Mr. Goudge is also Chairman of the Argentine Transandine, Dorada, Arica & Tacna, Bolivar, La Guaira & Caracas, Salvador, and Puerto Cabello & Valencia Railway Companies.

We regret to record the death on April 10 of Sir Leonard Cohen, K.C.V.O., a Director of the Bengal & North-Western and the Rohilkund & Kumaon Railways. Sir Leonard was born in 1858, and on leaving school entered his father's firm of stockbrokers and foreign bankers—Louis Cohen & Sons. He soon became a partner, and remained one until the firm was dissolved in 1901. From 1896 to 1904 he was a member of the Foreign Committee of the Stock Exchange, but after retiring from business in 1895 he devoted most of his leisure to work for charity. He was created a K.C.V.O. for his public services in 1930.

Mr. A. S. Mills, who retired from the position of London District Goods Manager, Great Western Railway, in December, 1936, has been appointed Honorary Secretary of the Retired Railway Officers' Society in succession to Mr. W. A. Thomas.

The Associated Society of Locomotive Engineers and Firemen announces that Mr. W. T. Allen, the present Assistant General Secretary, has been declared General Secretary Elect in succession to Mr W. J. R. Squance.

Indian Railway Staff Changes

Sir Harold Colam, Agent, M. & S.M.R., has been granted leave preparatory to retirement as from April 19.

Mr. C. G. W. Gordon, Chief Commercial Manager, has been appointed to act in his place as Agent.

We regret to record the death, in Rio de Janeiro on April 9, of Mr. Walter James Hutchinson, who had been Chief Engineer of the Leopoldina Railway since August, 1920. Mr. Hutchinson served a three years' pupilage under Mr. C. J. Crosbie-Dawson, Chief Engineer of the North Staffordshire Railway, from 1891 to 1894, afterwards receiving an appointment on his staff where he served until February, 1903. On the latter date he was appointed to the staff of Mr. W. Dawson, Chief Permanent Way Engineer of the London & North Western Railway, with which company he remained until January, 1910; during this period extensive enlargement works were executed at Crewe, and Mr. Hutchinson prepared all the stage plans for carrying out these alterations. On his return from a private business trip to Jamaica in January, 1911, he was offered and accepted an appointment upon the staff of Mr. J. B. Ball, New Works Engineer, Great Central Railway, which post he occupied until October, 1916. Mr. Hutchinson's South American career began at the latter date, when he accepted the position of Divisional Engineer on the São Paulo Railway, Brazil, being in charge of the 1st Section at Alto da Serra, which included supervision and maintenance of the cable-operated inclined planes between Alto da Serra, and Piassaguéra. Finally he was offered and accepted the position of Chief Engineer, Leopoldina Railway, in August, 1920, and among the new works for which he was responsible were the construction of the Magé line (by means of which traffic to and from Campos and the "Littoral" area first had access to Rio de Janeiro), the re-signalling of Rosario station, the re-constructed Barão de Maná station and new signal box there, widening of the line between Barão de Maná and Triagem, and other improvements.

Model Railway Club Exhibition

The annual exhibition organised by the Model Railway Club opened at the Central Hall, Westminster, on Tuesday last. The early comers, waiting for the doors to open, gathered round a lorry from which a fine model of the L.N.E.R. Pacific *Harvester* (which works on the passenger-carrying Surrey Border and Camberley Railway) was being unloaded. That the exhibition was larger and more comprehensive than ever before was remarked by the large crowds that soon began to fill the hall. If it is true that genius is an infinite capacity for taking pains, then the craft of countless model builders, members of nearly all professions, must be adjudged akin to madness.

A novel display is that devoted to the historical side of railways. The old London & Birmingham, which this year celebrates its centenary of opening throughout, is well represented by an interesting collection of old books and prints, as also are the Grand Junction and the Liverpool & Manchester Railways, which formed units of "The First Main-Line Railway"—the theme of the exhibit. A large French coffee pot in the form of a century-old locomotive occupies a conspicuous place on this stand, which is surmounted by the crests or coats-of-arms of many pre-grouping companies. The display is completed by an old railway telegraph, a stone sleeper from the old Surrey Iron Railway, and a showcase containing postage stamps of railway interest, ranging from the one-cent Brunswick 1860 to the well-known stamps of the Deutsches Reich.

Of course, the centre of attraction is the multi-gauge passenger-carrying line, which runs down the middle of the hall. Several locomotives of 4¾-in. or 5-in. gauge take turns in hauling on the diminutive trucks the not-always-so diminutive passengers. The Tilbury Baltic and the Adams L.S.W.R. express locomotives are fine engines, but perhaps the most interesting of the passenger-carrying models is a Kirtley 2-4-0, which on the opening day of the exhibition was undergoing repair. It is interesting to note that, as London water is not suitable, these engines have to use distilled water. Further on is a model stretch of track representing the unique signalling system on the Boroughbridge branch of the L.N.E.R.

Southern Railway.—As a consequence of the publication of Mr. L. T. Catchpole's book "The Lynton and Barnstaple Railway, 1895-1935," a wide interest has been aroused in this defunct narrow-gauge system and several models of the coaches and wagons are on show. Exhibits of particular interest on the Southern stand are an "O" gauge "King Arthur" class locomotive and train of coaches; a two-coach electric set shown by Mr. S. S. Dent, an ex-L.B.S.C.R. twin-coach overhead electric set; and many examples of Stroudley, Adams, and Billinton types.

G.W.R.—Nearly every product of Swindon is represented in miniature on the stand devoted to Great Western models. Perhaps the engine which most takes the eye of the model builder is C. R. Wood's model of a Vale of Rheidol tank locomotive. Mrs. P. R. Boswell, the only lady exhibitor, has on show here a model of a G.W.R. Macaw B wagon, which displays her skill in the craft of model building.

L.M.S.R. and L.N.E.R.—To those who favour pre-grouping Scottish practice the stand displaying models of the rolling stock of former Scottish companies proves at once a novelty and an attraction. Only the old G.S.W.R. is not represented. Other exhibits were several interesting models by Col. R. Henvey, Vice-Chairman of the M.R.C., and a fine 7-mm. scale model of *Princess Royal*, which, as its maker Mr. W. E. Ormes is a disabled ex-soldier, merits special praise for its excellent workmanship and finish. It is run by a tiny 6-volt electric motor. Outstanding exhibits on the L.M.S.R. stand were a 10-mm. to 1-ft. model of an ex-L. & Y.R. Hughes 4-6-0; a 3·5-mm. to 1-ft. reproduction of the Trevethick locomotive *Cornwall*; an "O" gauge ex-M.R. Johnson 4-2-2 express passenger locomotive; and a fine model of Webb's 2-2-2-2 engine, *Greater Britain*.

There is an interesting stand devoted to miscellaneous models. Mr. T. M. L. Lance, who specialises in American models, has models of former and present-day coaching stock. He is also exhibiting a model of a C.P.R. snow-shed. Other models to be noted in this group are an L.M.S.R. compound (steam), a G.W.R. 2-6-2 tank of 17/32-in. to 1-ft. scale, contrasting with a model of the old *Duke of Connaught* single driver express, and Col. Henvey's model of a 6-wheel wagon of Cleminson design, which ran on the Southwold Railway. Noteworthy among the free-lance exhibits is the display of the "OO" gauge South Midland Railway, with its named expresses—The Dusmarian, The Royal Bulgar, and Coronation Comet Limited—and its internally-fitted rolling stock. The topography of the line is described, and its affairs stated to be in the capable hands of Farthing T. E. Dogsbody (Chairman), Polyphemus Psambuk (General Manager), and I. Notsoe-Verrismellie (Chief Mechanical Engineer).

The most notable stands on the lower floor are the fine L.M.S.R. layout of the Ilford & W. Essex Club, an excellent "OO" gauge system, and two displays of electric systems. One of these is a length of Southern electrified track operated by a three-coach set and controlled by a 30-lever box; the other is a stand on which the most interesting feature is Mr. Moody's ingenious model of the closing-door mechanism of the tube trains. Mrs. P. R. Boswell's other entry, a model of an S.R. four-wheel van, is also on show in the lower hall. A cinema programme is given at intervals, composed of films of model railway interest, and others issued by the main-line railways showing famous expresses and holiday districts of Great Britain.

Among the model firms, Buck & Ryan's stand contains all the necessary adjuncts for the model engineer, whether he be a "OO" gauge enthusiast or a maker of passenger-carrying locomotives. On Miller & Swan's stand are two delightful models, one of an old L.B.S.C.R. locomotive of Stroudley's design, the other of a former Midland express engine, while the Windsor Model Company has also a fine show. Bassett-Lowke Limited, in addition to displaying numerous items from its well-known range, is responsible for showcase models of an L.M.S.R. first class dining car and "Princess Royal" class Pacific, the latter constructed for the Johannesburg Exhibition. The car has been shown at Paris. A model of the L.N.E.R. streamlined Pacific *Silver Link* in its new blue livery, is also on show. It was made by the L.N.E.R. at Doncaster, and has already been exhibited at Johannesburg and Paris.

SNAYGILL VIADUCT.—Snaygill viaduct, Cononley, on the L.M.S.R. Leeds-Carlisle line, is to be reconstructed so as to permit, if necessary, the working of the heaviest type of engine over this route. The northern span of the viaduct will be filled in and the other two spans rebuilt with steel and concrete superstructure.

G.W.R. AMBULANCE COMPETITION FOR WOMEN EMPLOYEES.—The first contest for the "Florence M. Lean" challenge cup presented by the wife of Mr. J. F. Lean (formerly Principal Assistant to the General Manager, G.W.R.) was held in the General Meeting Room at Paddington on March 29, when seven teams participated. The adjudicators were Dr. S. McCormac of Newport and Dr. C. S. Drawmer of Southall, for the team and individual work respectively. Prizes in kind, the gift of the directors, were awarded for the teams gaining first, second, and third places, and these were presented by Mr. F. R. Potter, Superintendent of the Line, who was supported by Mr. R. Carpmael, Chief Engineer, Mr. H. J. Peacock, Operating Assistant to the Superintendent of the Line, and Mr. C. T. Cox, Divisional Superintendent, Paddington. Mr. Potter, who complimented all participants on their work, generously offered, on behalf of his wife, a further trophy for women competitors. The result of the competition was as under:—

	Team	Marks
1st—"Florence M. Lean" Cup and prizes (pewter tea services)	Shrewsbury	185½
2nd Prizes (Barbola mirrors)	Paddington	183
3rd Prizes (tea knives and forks)	Swindon ...	168

It was announced that the challenge cup would be presented at Paddington on the occasion of the men's final competition on April 29.

Ancillary Businesses of the British Railways in 1937

I—Docks, Harbours, and Wharves

The volume of business dealt with at the railway-owned docks, harbours, and wharves last year was substantially in advance of that handled in 1936, and the gross receipts, at £7,422,003, were £609,477 in excess of the previous year. Even more striking was the improvement in net receipts, which amounted to £1,004,924, an increase of £331,095, or 49 per cent., compared with 1936. Details of the financial results of the individual companies' docks business for the last two years are shown in the following table:—

DOCKS, HARBOURS, AND WHARVES

Company	Receipts		Expenditure		Surplus		Per cent. of surplus to gross receipts	
	1937	1936	1937	1936	1937	1936	1937	1936
	£	£	£	£	£	£		
G.W.R. ...	2,242,128	1,886,021	1,899,746	1,766,320	342,382	119,701	15·3	6·3
L.N.E.R. ...	2,794,047	2,735,031	2,546,196	2,551,385	247,851	183,646	8·9	6·7
L.M.S.R. ...	1,102,586	991,335	1,067,339	978,506	35,247	12,829	3·2	1·3
S.R.	1,283,242	1,200,139	903,798	842,486	379,444	357,653	29·4	29·8

It will be seen that the G.W.R. experienced a very satisfactory year, the gross receipts having increased by £356,000, principally under the heads of dock dues, cranage and other services, and dock railways. The additional traffic handled naturally involved increased costs, principally in respect of maintenance and operating expenses, but the net profit amounted to £342,382, an increase of £222,681 or 186 per cent. compared with 1936. This was the best result since 1930 and was mainly due to the improvement in the South Wales coal export trade and increased activity in the iron and steel industry. Total exports increased by 3,892,000 tons and imports by 862,000 tons. It should be remembered, however, that 1936 was the worst year experienced by the South Wales ports since 1926, when there was a protracted miners' strike, and while the volume of traffic dealt with last year showed substantial improvement, it still remains at a low level in comparison with pre-depression years. In 1929, for instance, the exports from the principal South Wales ports amounted to 33,241,000 tons compared with 22,856,000 tons last year, the net revenue for the two years having been £560,032 and £342,382 respectively.

L.N.E.R. dock receipts amounted to £2,794,047, an increase of £59,000 compared with 1936, but this was negatived by an increase of £60,000 in expenditure. As, however, the amount transferred to renewal or suspense account was £65,000 less than in 1936, the net revenue of £247,851 showed an increase of £64,205, or 35 per cent., compared with the previous year. Increased coal exports, particularly through the Humber, were an important factor in the improved receipts, apart from the general upward trend of import and export business.

The L.M.S.R. achieved a very satisfactory result last year, due in part to the increased charging powers granted by Parliament at Holyhead. Gross receipts advanced by £111,000, while expenditure rose by only £5,000. The amount transferred from renewal account was only £9,717 compared with £93,700 in 1936, but even so the net profit amounted to £35,247, an increase of £22,418, or 175 per cent., compared with the previous year. This was the best result recorded by the L.M.S.R. in any year.

The Southern also experienced a very successful year, gross receipts increasing by £83,000, more than half of which was accounted for by cranage and other services. Total expenditure rose by £61,000, which included an increase of £30,000 in the amount transferred to renewal or suspense account, and the net receipts, at £379,444, were £21,791, or 6 per cent., greater than in 1936.

New Works and Improvements

The four companies continued their policy of modernising and improving the docks under their control and there were some interesting developments in this direction last year. The G.W.R. augmented the lairages at Roath Dock, Cardiff, and the new accommodation is now capable of holding 760 fat or 950 light head of cattle. New offices were also provided for Ministry of Agriculture officials and traders' representatives. At Swansea four new grabs and 20 new general cargo tubs were supplied in order to facilitate the discharge of the large quantities of scrap entering the port. The Talbot wharf at Port Talbot has been reconstructed and lengthened in ferro-concrete work; eight new hydraulic luffing cranes have been installed at Barry; and the deep-water berth at the inner basin at Plymouth has been deepened and extended to 450 feet in length.

In order to increase the facilities for handling timber at Victoria Dock, Hull, the L.N.E.R. is providing three new berths and extra accommodation for stacking timber and storing wagons. The new sidings will have a capacity of 620 bogies and the berths will provide 1,000 feet of extra quayage equipped for the discharge of timber direct from vessels to rail. This work, together with other improvements at Grimsby, Lowestoft, &c., involved a capital expenditure of £94,642. On the other hand, the sale of Tyne Dock, near Jarrow, which became the property of the Tyne Improvement Commission as from April 30, 1937, resulted in a credit of £807,812 to capital account. In addition, an amount of £327,785 was transferred to "Lines belonging to the Company open for Traffic," with the result that the total capital expenditure on docks, harbours, and wharves, at the end of 1937 showed a reduction of £1,040,730 compared with the previous year. The total capital invested in the company's dock undertakings is now £24,968,309, which is still substantially in excess of any other company, although the G.W.R. has nearly £21,000,000 similarly invested.

In connection with the scheme for the modernisation of Fleetwood docks, the L.M.S.R. provided six high-capacity coaling plants, the use of which has materially reduced the time required for bunkering trawlers. This installation was described in THE RAILWAY GAZETTE of September 3 last year. The company also authorised an expenditure of £40,000 for the construction of an up-to-date slipway at Fleetwood with the object of keeping the port abreast of the latest developments in the trawling industry.

Last year witnessed the virtual completion of the second stage of the Southern Railway Southampton docks extension scheme, and the new road serving the reclaimed area of land was opened. Two model factories have been erected to show what accommodation can be provided for firms requiring new works, and Mr. Robert Holland-Martin stated at the recent annual general meeting of the company that sites for factories on the large estate now available have been let to H. J. Heinz & Co. Ltd., and Cadbury Bros. Ltd., while General Motors Limited has taken an area of six acres for the establishment of a motorcar assembly factory.

IRON CASTINGS.—Two new British Standard Specifications (B.S.S. Nos. 321 and 786 respectively) for cast iron have been issued. One is a revision of B.S.S. No. 321 for general grey iron castings, Grades A and C; the other is a new specification for high duty iron castings, Grades 1, 2, and 3, to meet the demand for improved grades of cast iron having a tensile breaking strength greater than 12 tons per sq. in. Copies may be obtained from the British Standards Institution, 28, Victoria Street, London, S.W.1, price 2s. 2d. each post free.

Linking the Metropolitan with the Bakerloo

Notable works in progress in connection with the projection of the Bakerloo Line to Stanmore

Rapid progress is being made on the new works in connection with linking the Bakerloo and Metropolitan Lines of the London Passenger Transport Board. The cost of the complete scheme of improvements on the Metropolitan Line, including the extension of electrification to Amersham and Chesham is estimated at about £8,000,000.

When the first stage of the work is completed in the summer of 1939, through Bakerloo trains will run from Elephant and Castle to Stanmore *via* Piccadilly Circus and Oxford Circus. They will serve new tube stations at Acacia Road and Swiss Cottage. At Finchley Road passengers from the Bakerloo Line will be able to change on to Metropolitan Line fast trains for Wembley, Harrow and beyond, or *vice versa*, by walking across the platform.

The nature of the new through service between the Metropolitan Line and the West End may be gauged by the fact that 4,000,000 passengers now interchange with the tube at Baker Street station. In addition, many passengers travel by bus to Baker Street and join the Bakerloo at that point. Others journey throughout by bus. It is estimated that the immediate effect of the through service will be to benefit 5,000,000 passengers a year. It will also be possible for passengers to exchange at Baker Street station, which is being reconstructed with an additional tube platform and additional escalators. At present 23,000,000 passengers use the station in a year. To cope with the traffic, Finchley Road station will be served by 41 trains an hour (24 Metropolitan and 17 Bakerloo); Baker Street station will be served by 85 trains an hour on all lines. The signalling on the existing Bakerloo Line will be altered to provide for the increased service, and platforms now accommodating six-car trains will be lengthened to accommodate seven-car trains. Additional terminal facilities, including a third platform, will be provided at Elephant & Castle station.

Typical journey times will be as follow:—

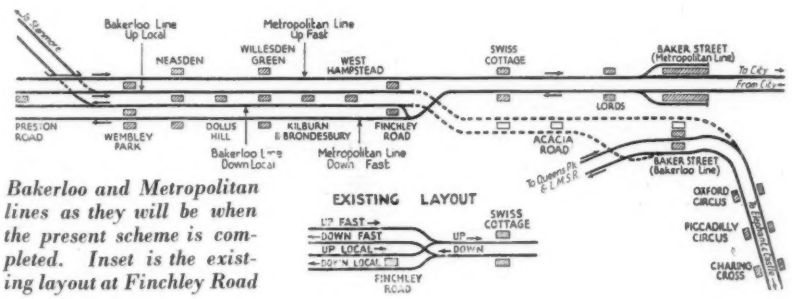
Finchley Road–Oxford Circus ...	8 min.
Swiss Cottage–Piccadilly Circus	9 ,,
West Hampstead–Charing Cross	14 ,,
Kilburn–Oxford Circus	11 ,,
Acacia Road–Waterloo	12 ,,

Improved, high-speed rolling stock will be run, with more comfortable seating and riding. There will be a fast service on the Metropolitan main line between Finchley Road and Baker Street. Marlborough Road station will be closed, and St. Johns Wood station, renamed "Lord's," will be opened only for important cricket matches. The length of new line between Finchley Road and Baker Street is 2·2 miles and the distance run by the new Bakerloo service between Stanmore and Elephant & Castle will be 14·8 miles.

The project is a part of the £45,000,000 scheme of extensions and improvements to the travelling facilities of London. When complete the 600,000,000 passengers now carried in a year on the L.P.T.B. railways will, it is expected, increase to approximately 715,000,000.

New Works in Progress

We recently visited the principal works between Baker Street and Finchley Road. From the new tube station at Swiss Cottage the two new tunnels rise to the level of the Metropolitan Line at Finchley Road station. Owing to the close proximity of the tunnels to the surface of the road, the works had to be carried out by opening up the road in small sections, so that two lines of traffic could be maintained.



Bakerloo and Metropolitan lines as they will be when the present scheme is completed. Inset is the existing layout at Finchley Road

To provide platform interchange at Finchley Road station between Metropolitan and tube trains, it was necessary to design and construct the two new tubes so that they lay between the existing Metropolitan tracks. To carry out these works, a new up Metropolitan tunnel had to be built to allow the two tube tunnels to rise to the surface. Briefly the method of construction is as follows: The new up Metropolitan tunnel was constructed for the greater part under property fronting on Finchley Road on the east side. The down tube tunnel will be diverted through the abandoned up Metropolitan tunnel until it reaches the required level at Finchley Road station.

This work presents several interesting features: (1) The existing Metropolitan train service has to be maintained. In June next trains will be diverted from the old to the newly-constructed tunnel without interruption of traffic; (2) sewers, water, gas and power mains and a large number of Post Office mains had to be diverted; (3) the drainage of the various properties in Finchley Road had to be connected to the diverted sewer; (4) where the buildings lay above the new tunnel, the work was done from the basements, an interesting example being the North Star public house where the building was entirely underpinned and now spans the tunnel from side to side. In this particular instance there is a space of only 2 in. between the top of the new tunnel and the cellars of the public house. A surface station will be constructed at the junction of Finchley Road, Grove End Road, and Acacia Road just south of the existing Metropolitan station at Marlborough Road. The site of this new station, to be called Acacia Road, is at present used as a working site with a shaft sunk to tube level. There will be two modern high-speed escalators with central fixed stairs from the ticket hall to the tube platforms. This station, which is being designed by the board's Architect, Mr. S. A. Heaps, will be to the standard adopted by the board in recent extensions.

At Baker Street station a second southbound tube platform has been constructed to permit of one platform being used entirely by trains from the Metropolitan Line, leaving the existing southbound platform available for trains coming from Queens Park and proceeding to Elephant & Castle. Both the existing platforms will be lengthened to accommodate seven-car trains. There will be an additional bank of escalators from these two southbound platforms to a new circulating area under the Metropolitan Line tracks, with a further flight of escalators to the street. The top station also will be reconstructed.

The existing Bakerloo tunnels are being connected with the new tube tunnels by means of step-plate junctions. This work comprises a series of enveloping tunnels varying in diameter from 27 ft. to 14 ft. The tunnels, ranging in diameter from 27 ft. to 19 ft., are being constructed round the existing tunnels while trains are running, but the smaller sizes of tunnel, from 19 ft. down to 14 ft., can be built only between 1.0 a.m. and 5.0 a.m., when there is no traffic.

The work is being designed to the requirements of Mr. V. A. M. Robertson, Chief Engineer, London Passenger Transport Board, by, and carried out under the supervision of, Sir Harley H. Dalrymple Hay and Mr. William T. Halcrew, Consulting Engineers to the London Passenger Transport Board. The Resident Engineer is Mr. D. F. C. Fitzgerald. The cost of these works, together with the new tube tunnels from Baker Street to Finchley Road (4½ miles single track), will amount to £1,865,000.

XUM

QUESTIONS IN PARLIAMENT

Railway Air Services

Mr. A. M. Lyons (East Leicester—C.) on April 6 asked the Under Secretary of State for Air whether any and what arrangements existed or had existed for the loan or transfer of pilots from Imperial Airways Limited to Railway Air Services Limited; and whether any such arrangements existed between Imperial Airways Limited and any other operating company.

Lieut.-Colonel A. J. Muirhead (Under Secretary of State for Air): I am informed that Imperial Airways Limited supplies the pilots and wireless operators to Railway Air Services for the operation of its services and that similar arrangements are in operation between Imperial Airways and other companies. The general position is that the company is prepared to make such arrangements, subject to the necessary personnel being available, for aircraft users in general who are not in competition with it or with its associated companies.

Level-Crossings

Mr. J. A. Parkinson (Wigan—Lab.) on April 6 asked the Minister of Transport if he would state the number of railway level-crossings in this country; how many bridges there were which were scheduled to carry limited weights only; and the totals of killed and injured at level-crossings during 1937.

Dr. Leslie Burgin (Minister of Transport): There are approximately 4,560 public road level-crossings on the principal railway lines in Great Britain. There are some 2,500 bridges at present scheduled to carry limited weights on trunk and other classified roads, and on unclassified roads used by double-deck bus services. The number of such bridges on other unclassified roads is not available. The latest provisional figures for 1937 show that 9 persons were killed and 15 injured in accidents on public road level-crossings in which trains were involved. The number of accidents at level-crossings during 1937 involving road vehicles only is not known, but in the year ended March 31, 1937, there were 26 involving personal injury.

Railway Workshops

Mr. P. J. Noel-Baker (Derby—Lab.) on April 6 asked the Minister for the Co-ordination of Defence whether railway workshops, in which the employees were on short-time or in which the plant was not working to full capacity, were being used for the production of armament requirements or component parts.

Sir Thomas Inskip (Minister for the Co-ordination of Defence): Railway shops are not being used at the present time for the production of armament requirements but the possibility of their use is under active consideration.

Mr. Noel-Baker: Is the right hon. gentleman aware that there are some factories working very long hours overtime, while railway shops close at hand, which could do the work, are working short-time, and the workers being dismissed? Will he look into the question?

Sir T. Inskip: I am looking into it.

Mr. Rhys Davies (Westhoughton—Lab.): Is there any possibility of an arrangement being made between the several Government departments whereby skilled engineers in railway works who are dismissed because of lack of work can be transferred to rearmament factories for employment?

Sir T. Inskip: That is one of the questions which will be dealt with, if it is thought worth while, by the two bodies conducting negotiations.

Transport for Prisoners

Mr. H. Day (Southwark Central—Lab.) on April 7 asked the Secretary of State for the Home Department, whether the responsible authorities had now been able to overcome the difficulties of transporting all prisoners by road, either before, during, or after their trial, in order that prisoners should not be transported by train chained together in view of the public.

Sir Samuel Hoare (Home Secretary): Standing Orders provide that road transport should be used for the removal of prisoners in preference to rail whenever possible. When prisoners are sent by rail everything possible is done by the prison authorities in conjunction with the railway companies to prevent their exposure to the public.

Railways and Air Line Bookings

Mr. W. R. D. Perkins (Stroud—C.) on April 7 asked the Under Secretary of State for Air whether the booking ban imposed by the railway companies on travel agents had been lifted from any of the five air-line companies on which it operated.

Lieut.-Colonel A. J. Muirhead (Under Secretary of State for Air): Full booking facilities were already available in respect of the services of Portsmouth, Southsea & Isle of Wight Aviation Limited, and of the Scandinavian services of Allied Airways. They have now been made available in respect of the inland services of the latter.

Mr. W. L. Everard (Melton—C.) on April 7 asked the Under Secretary of State for Air whether, in view of the fact that Olley Air Services Limited was a British company, he would arrange for the ban put upon their booking facilities on the line from Croydon to Dublin to be removed by the agents of the railway companies.

Lieut.-Colonel Muirhead: The Secretary of State for Air and I fully share the views expressed in this House on the subject of the ban imposed on booking facilities being accorded by the booking agencies to certain air line operating companies. These views, as the House is aware, have been conveyed to the railway companies. I hope that the railway companies will agree to refrain from influencing the freedom of travel agencies. In doing so they would, I am sure, be acting in accordance with the wishes of the House. But the Secretary of State has informed the railway companies that in default of agreement it will be necessary to make provision for dealing with this matter in the Licensing Order relating to internal air services.

Underground Railway as Air Raid Shelter?

Mr. Duncan Sandys (Norwood—C.) on April 7 asked the Home Secretary whether it had yet been finally decided to make use of the underground railway in London as part of a scheme of air-raid shelters.

Mr. Geoffrey Lloyd (Under Secretary of State for Home Affairs): This matter is one that continues to have careful examination. The difficulties and risks of the use of the underground railway system as public shelters are formidable, but no final decision has been taken.

Rutherglen Railway Accident

Mr. Allan Chapman (Rutherglen—C.) on April 11 asked the Minister of Transport whether he was able to make a statement regarding the accident in Rutherglen station on Friday (April 8) to the 1.38 p.m. train from Lanark to Glasgow, involving the death of one passenger and injuries to 18 others.

Dr. Leslie Burgin (Minister of Transport): I have had a report from the L.M.S.R., from which it appears that the train from Lanark to Glasgow Central became derailed while passing through Rutherglen. It is with great regret I have to state that 19 persons were injured. One of them has since died. I have already appointed an officer to hold an inquiry into the circumstances of the accident and a report will be published in due course. The House will wish me to take this opportunity of expressing the deep sympathy which we must all feel with those who are affected by the accident.

Mr. Chapman: Is it possible for the Minister to inform the House of the type of coach or coaches in which the injured persons were travelling?

Dr. Burgin: The inquiry is to be held in Glasgow, I believe on Wednesday of this week, and I do not think it would be advisable for me to go into details now. The House will recollect that this is not a collision, so that perhaps the matter raised by Mr. Chapman may not be very material.

Irish Sea Airways

Mr. G. Le M. Mander (East Wolverhampton—Lib.) on April 12 asked the Secretary of State for Dominion Affairs what communications had passed between the British Government and the Government of Eire on the subject of the removal of the Railway Clearing-House ban on Irish Sea Airways, a line flying between Great Britain and Eire; and what were the political aspects of

the question referred to in the Cadman Report on civil aviation which were preventing a satisfactory solution.

Mr. Malcolm MacDonald (Secretary of State for Dominion Affairs): The question of arrangements to resolve the difficulties which have arisen is still under discussion, and it is hoped that a satisfactory solution will be found at an early date.

Mr. Mander: Can we have some information as to what these political differences are? No information at all has been supplied up to the present.

Mr. MacDonald: I am not prepared to make a statement at the moment, because the matter is still under discussion.

Air Raid Damage to Railways

Colonel H. L. Nathan (Wandsworth, C.—Lab.) on April 13 asked the Minister of Transport what steps were being taken by his department to ensure the immediate repair of railway lines, bridges, and stations in the event of their being damaged by air raids.

Dr. Leslie Burgin: A special technical committee consisting of officers of the railway companies, the Home Office, and my department has been set up to examine these and other precautionary measures.

Railway Facilities to Empire Exhibition

Mr. Robert Gibson (Greenock—Lab.) on April 13 asked the Minister of Transport whether the railway companies were taking steps to provide additional facilities by way of special trains, and specially cheap fares, from industrial centres in Scotland and England to Glasgow while the Empire Exhibition was open.

Dr. Leslie Burgin: Yes, sir. Certain announcements regarding additional railway facilities have already appeared in the press and I understand that a further announcement will be made shortly.

Railways and Day Trip Liability

Mr. T. Cassells (Dumbartonshire—Lab.) on April 13 asked the Minister of Transport if he had any statement to make in connection with his negotiations with railway companies as to common law liability in cheap daily travel tickets.

Mr. Robert Gibson (Greenock—Lab.) also asked the Minister of Transport if his conversations with the railway companies regarding their immunity from liability to holders of cheap tickets had now reached a satisfactory conclusion; and if he would make a statement on the subject.

Dr. Leslie Burgin (Minister of Transport): The four main-line railway companies have informed me that they will not in future seek to exempt themselves by special contract from their liability at Common Law in respect of injury, fatal or otherwise, to passengers (other than those holding privilege tickets or free passes) when travelling in the companies' trains or whilst in the act of entering, or alighting from, such trains. Where in the case of passengers holding workmen's tickets who may be injured in such circumstances the railway companies' liability at Common Law is limited by Special Act, the railway companies will not plead such limitation. The conditions of issue of cheap day, half-day, and evening tickets and workmen's tickets will be amended accordingly in due course and meanwhile I am happy to say that the companies have decided to apply these concessions to accidents which occurred on or after December 1, 1937.

Mr. Cassells: Is it understood that this principle should likewise apply to all cheap excursion tickets?

Dr. Burgin: I would prefer that the answer was taken exactly at its face value. If there is any further matter perhaps the honourable gentleman will put down a question. The railway companies have dealt very handsomely with the point which was raised and I do not want in answer to a supplementary question to go beyond what I am quite sure of being able to implement.

L.N.E.R. Signalling System

Mr. J. J. Davidson (Glasgow, Maryhill—Lab.) on April 14 asked the Minister of Transport, if, following the evidence submitted during the inquiry on the Castlecary railway disaster, any change was contemplated in the signalling system of the Scottish section of the L.N.E.R.

Dr. Leslie Burgin (Minister of Transport): I am informed by the L.N.E.R. that no change is at present contemplated in the signalling system on the section of the company's lines in question, but that, if the report of my Chief Inspecting Officer makes any suggestions in regard to signalling, these will be carefully considered.

PARLIAMENTARY NOTES

Progress of Bills

A Committee (Group E.) of the House of Commons has been formed, with Sir David Reid as Chairman, to meet on Tuesday, May 3, to consider the Brighton Corporation (Transport) Bill. The next measure to be considered by this group is the London & North Eastern Railway Bill. Group F, with Sir Lambert Ward as Chairman, will begin to consider the London Passenger Transport Board Bill on May 3.

Spread-Over Holidays

Mr. Roland Robinson (Blackpool—C.), speaking in the debate on spread-over holidays on April 6, dealt with the position from the point of view of the railways in one part of his speech. He said that during the month of August, making a comparison with an average month, they found that the railways carried 20,000,000 extra passengers. That was at the rate of 500 to each train. It meant that the railway lines of the country were compelled during the month of August to run some 40,000 extra trains, in addition to their normal traffic. They had very unhealthy peaks of activity in the rail transport industry, unhealthy financially because the companies concerned had to keep a large amount of rolling stock idle throughout the year so that when the time came it could meet the vast amount of traffic which was put upon it. It was financially unsound, too, because rail companies were compelled to ask their employees to work many hours of overtime, which cost a great deal of money and was not probably very desirable from the point of view of the worker himself.

Mr. Creech Jones (Shipley—Lab.) said that the railway companies and the resorts and tourists' organisations had done their best to widen the period of the use of their facilities. By advertising and other methods they had tried to get over to the public that holidays ought to be taken over a wider period. He noticed an advertisement by the Great Western Railway in the *New Statesman* pointing out "the joy of early holidays." The railway companies had also extended transport facilities into the out-season. There were now 3,000,000 workers getting holidays with pay, and the number was rapidly increasing. If they all had to go in August there was bound to be chaos and confusion. A scheme for staggering holidays had worked easily and without friction for years in 108 cotton towns in Lancashire and Yorkshire, and also in towns in Scotland.

Mr. Ernest Brown (Minister of Labour) said that the extension that they had already seen of holidays with pay by collective agreement had created new and urgent problems for the railways as regarded the provision of the travelling facilities. The Amulree Committee was approaching the completion of its work. It had received evidence from the railway companies with regard to questions of traffic facilities. The House would very soon be in possession of the report of the Committee, which would have immediate and urgent consideration.

Mr. F. B. Simpson (Ashton-under-Lyme—Lab.) said it would be unreasonable, if not impossible, for the railway companies of this country to provide the necessary amount of locomotive power and all the vehicles required for two or three weeks' big traffic rush, and to have no use for them for the remainder of the year. In the solution of the problem they needed and deserved the co-operation of the community itself.

TELEPHONE NUMBER CHANGE.—The telephone number of Messrs. Merz & McLellan, of 32, Victoria Street, S.W.1, is now Abbey 8040.

NOTES AND NEWS

Polish-Lithuanian Train Service Restored.—Railway communication between Vilna and Kovno (Kaunia) was restored during the week-end of April 10-11, after having been closed for 18 years. Diplomatic missions only were carried by the first train and, according to a Central News message, the line is not yet open for general public traffic.

The London-Aberdeen T.P.O.—Until recently this famous Post Office express, often nicknamed the "West Coast Postal," had a permissible maximum of 16 vehicles on the Up journey and 12 on the Down. On March 14, however, the Up maximum was reduced to 13 and the Down maximum increased to 14; the new figures were quoted in our article on the centenary of the travelling post office published on April 1 last.

Colour-Light Signalling at Horsham, Southern Railway.—At 12.5 a.m., on Sunday, April 24, colour-light signalling will be introduced at Horsham. A new signal box will then be brought into use to replace the existing Horsham Junction and Horsham West boxes. It will have 90 levers and an illuminated track diagram. Colour-light signals will also be provided on a portion of the up line between Christ's Hospital and Horsham. This new signalling is in preparation for the new electrification to be brought into use on July 3.

Replacement of Ford Bridge, Southern Railway.—Over the week-end, April 23-25, the drawbridge at present carrying the Southern Railway over the River Arun at Ford, will be removed by cutting into sections by burning, and replaced by a fixed steel structure. Ford station will be closed from 6.0 p.m. on April 23 (Saturday) to 6.0 a.m., on April 25 (Monday). Buses will convey passengers between Barnham, and Littlehampton stations. The foundations of two piers in the middle of the river have been strengthened with reinforced concrete piles, and the old trestles replaced. The work is in connection with the electrification to Littlehampton and Portsmouth, to be inaugurated on July 3.

G.W.R. Ambulance Competitions.—During February and March the preliminary and semi-final rounds of the Great Western Railway first-aid competitions have been decided. Contests for Class I and Class II teams (formerly known as advanced and beginners) have taken place in all seventeen divisions of the system for the purposes of ambulance organisation, and 278 teams entered—124 in Class I and 154 in Class II. After semi-finals held at Birmingham, Newport, Bristol, and Paddington, eight teams have qualified to enter the final contest which will take place in the General Meeting Room at Paddington on April 29, when Viscount Horne, Chairman of the company, will present the Directors' challenge shield, prizes, and other trophies. The teams concerned are: Barry Loco., Swindon, Purton, Paignton, Westbury, Aberdare, Pilning, and Trawscoed.

Accident on South African Railways.—As a result of the derailment of the Cape mail train at Bank station, 44 miles from Johannesburg, on April 16, four persons, including the driver and fireman, were killed and eleven injured.

Monsieur Chapelon on the Steam Locomotive.—The price of "La Locomotive à Vapeur," by André Chapelon (J. B. Baillière et Fils, 19, Rue Hautefeuille, Paris, 6e), which was reviewed on pages 749-753 in THE RAILWAY GAZETTE of April 15, is fr. 350 and not as we then stated.

L.N.E.R. Musical Society Dinner Dance.—Sir Ralph Wedgwood, Chief General Manager, L.N.E.R., presided on April 1 at a dinner and dance of the company's musical society held in the Abercorn Rooms, Liverpool Street hotel, London. There was a record attendance, and among the officers of the company present were:—

Messrs. A. Burton, F. W. Carr, C. Carslake, C. H. Newton, L. Preston, R. R. Pettit, Percy Syder, J. C. L. Train.

Allotment for Railways from Jugoslav Internal Loan.—It is stated that from the internal loan of 4,000,000,000 dinars authorised by the Jugoslav Parliament, the Government intends to allot a sum of 1,500,000,000 dinars (£7,000,000 at current rate of exchange) for railway extensions. The principal extensions proposed were referred to in some detail in an editorial and also in an Overseas letter on pages 793 and 798 of our issue of April 23, 1937, almost exactly a year ago.

Pullman Car Capital.—A petition to confirm the reduction of the capital of the Pullman Car Co. Ltd. from £1,125,000 to £237,500 was sanctioned by Mr. Justice Bennett in the Chancery Division on April 11. Counsel for the company explained that at the meeting of the preference shareholders holders of 373,462 shares voted in favour of the proposals and holders of 3,620 against. The £625,000 in seven per cent. preference shares, on which there were arrears of dividend, were to be replaced by £437,500 five per cent. income stock and 187,500 £1 "A" ordinary shares. The 500,000 £1 ordinary shares would be reduced to 2s. each. In addition, £533,617 was being written off the book values of the rolling stock and equipment. Mr. H. D. Leather, a holder of 1,290 preference shares, opposed the petition on the ground that the scheme operated unfairly against the preference shareholders. On 30 per cent. of their capital they lost their preferential right with regard to dividend and on the remaining 70 per cent. they lost 2 per cent. of their income. Mr. Justice Bennett said that the scheme had been put before the shareholders in a perfectly clear and intelligible manner, and it would be wrong for him to override or overrule their decision.

Passenger-Operated Doors on Tube Trains.—After observations of an experimental installation of passenger-operated doors on a Northern Line tube train, the London Passenger Transport Board has decided that all the trains on this line when extended to Elstree, High Barnet, and Alexandra Palace, and also on the Central Line when completed to Denham, Epping, Ongar, and Hainault, are to be fitted with these doors. They will be worked separately by the passengers only on the surface sections of these lines. An illustration of similar passenger-operated doors used on District Line stock appeared on page 407 of our September 3, 1937, issue.

Road Accidents.—The Ministry of Transport returns for March of persons killed or injured in road accidents is as below. The figures in brackets are those for the corresponding period of last year:—

	Killed		Injured	
England				
Pedestrians...	221	(202)	5,350	(5,175)
Others ...	226	(202)	9,694	(8,341)
Wales				
Pedestrians	10	(7)	206	(203)
Others ...	12	(5)	324	(290)
Scotland				
Pedestrians	34	(24)	671	(570)
Others ...	13	(23)	692	(665)
	516	(463)	16,937	(15,244)

The total fatalities for the preceding month were 462, compared with 462 in the corresponding period of 1937.

Supplementary Reserve Camps, 1938.—The dates for the camps at Longmoor of the various railway companies of the Supplementary Reserve during the coming summer will be as under:—

Unit	Date in camp
153rd (L.N.E.) Rly. Op. Co., R.E. (S.R.)	May 19–June 2
154th (G.W.) Rly. Op. Co., R.E. (S.R.)	
No. 1 Docks Group, R.E. (S.R.) ...	June 8–June 22
150th (L.N.E.) Rly. Con. Co., R.E. (S.R.)	June 23–July 7
152nd (G.W.) Rly. Con. Co., R.E. (S.R.)	July 8–July 22
155th (L.M.S.) Rly. W'shop Co., R.E. (S.R.)	Aug. 10–Aug. 24
No. 2 Docks Group, R.E. (S.R.) ...	
No. 2 Co. (I. of C.) Signals (S.R.) ...	
H.Q. and 156th (S.) Tptn. Stores Co., R.E. (S.R.)	Aug. 5–Sept. 8
151st (G.W.) Rly. Con. Co., R.E. (S.R.)	

Wage Cuts in Argentina Authorised by Government.—A Reuters message from Buenos Aires, dated April 14, states that the Buenos Ayres Western and the Buenos Ayres & Pacific Railways have been authorised by the Argentine Government to apply wage cuts of 5 and 10 per cent. respectively. The companies sought permission to impose the cuts on the ground of a heavy falling-off in traffic. In sanctioning the cuts, the Government declared that its decision conforms with the Presidential arbitration award of October 23, 1934, in the Argentine Railways

wages dispute of that year. This award provided for the abolition of short time and its replacement by new cuts, which were to be restored in proportion to the profits of the companies.

The California Limited Suspended.—The workings of the California Limited of the Atchison, Topeka & Santa Fe system (Chicago and Los Angeles) were suspended on April 1 as a "temporary economy measure."

Preservation of North British Atlantic Locomotive.—The L.N.E.R. has decided to preserve an example of the former North British Railway locomotive stock. The engine chosen is No. 9875, *Midlothian*, one of a batch of 14 Atlantics built in 1906 to the designs of Mr. W. P. Reid by the North British Locomotive Co. Ltd. From that date until quite recent years, these engines, together with six more of the same type added in 1911 and two in 1921, constituted the principal class of express passenger locomotives of the N.B.R., and later the N.B. Section of the L.N.E.R. *Midlothian*, which was withdrawn from service during December, 1937, will not, we understand, be sent to York Railway Museum. It is to be repainted in North British colours.

The Djibouti Railway and the Franco-Italian Talks. — Discussing topics ripe for treatment in the forthcoming Franco-Italian talks, *The Times* Rome correspondent refers especially to the Djibouti Railway, or to give it its full title, the C. de f. Franco-Ethiopien de Djibouti à Addis Abeba. He writes :—

"As to the Jibuti railway, it is believed that the Italian Government would be glad to obtain more effective control of it and develop its possibilities, in spite of the elaborate plans which they have made for new and better communications with the interior from Assab and Massawa. A cable railway, which it is claimed will be the longest in existence, is to be constructed from Massawa to supplement the existing railway on the most difficult part of the rise from the coast, while the port of Assab is being considerably developed and a railway is to be built from there to Addis Ababa. These improvements, however, will take years to complete, and meanwhile the Italians could use the Jibuti railway a great deal more than they do if it could be made to carry a heavier traffic."

Barcelona Power Stations Captured.—The capture by the Nationalist forces of the great reservoir at Tremp constitutes a menace to one of the principal sources of electrical light and power of Barcelona, and may therefore involve a partial or total stoppage of the Metropolitan and suburban rail services in the city. The Tremp reservoir, which is the property of the Barcelona Traction, Light & Power Company, is an artificial lake over 5 miles long and 2 miles wide. The dam is the fourth largest in the world; 600,000 tons of concrete were used in its construction; and its height is equivalent to that of a 30-storey building. The power station is capable of developing 40,000 h.p. The power stations of San Lorenzo and Camarasa have also been occupied by the Nationalist forces, and with the capture of these and that of Tremp, the Nationalists now control 530,000 out of the total of 600,000 kW. required by Barcelona. There are two auxiliary power stations in the city, worked by steam power, and it is not yet known for how long the Metropolitan and suburban train services will be able to continue running.

Fatal Derailment in Algeria.—An express from Oban to Algiers was derailed 1½ miles from Attafa, on April 17, causing the death of six persons and serious injuries to 11 others. The Garratt express locomotive was overturned, and the driver, who was trapped under it, amputated his own arm to release himself, so that he could assist in rescue work. The derailment is attributed to sabotage.

Anglo-Argentine Tramways Co. Ltd.—The holders of the first and second preference shares and ordinary shares of the Anglo-Argentine Tramways Co. Ltd. sanctioned, on April 7, the scheme of arrangement which had already been approved by the debenture stockholders on March 21. Subsequent to the class meetings, an extraordinary general meeting of shareholders was held when resolutions were passed sanctioning the said scheme of arrangement and the sale and transfer of the company's undertaking to the new transport corporation to be formed in Buenos Aires in accordance with the project contained in the Argentine Government's Decree of February 2; and ratifying on behalf of the company the *ad referendum* acceptance of the said project, which had already been notified by the directors to the Argentine Government. A resolution was also passed authorising the company to effect in its articles of association such consequential alterations as arose from the sanctioning of the scheme of arrangement.

Rutherglen Derailment, L.M.S.R. —On Friday, April 8, the 1.38 p.m. train from Lanark to Glasgow Central left the rails as it was running through Rutherglen station at about 50 m.p.h. As it was passing the junction a signalman saw a cloud of dust, accompanied by considerable noise, and gave the "obstruction danger" signal in both directions. The driver pulled the train up in a few hundred yards. At the inquiry conducted by Major G. R. S. Wilson for the Minister of Transport, Mr. J. N. Phillips, Operating Manager, Northern Division, L.M.S.R., said that in the company's opinion the accident was due to the breaking of the trailing axle on the leading bogie of the first vehicle, and that there was no other contributory cause. The first vehicle was derailed but those behind it remained on the rails for about 150 yd., when they too became derailed and the last coach partly mounted the platform ramp and turned over, suffering extensive damage. All the 19 injured persons, one of whom died later in hospital, were in this vehicle. The up main line was cleared by 6.30 p.m. and the down main about an hour later.

British and Irish Railway Stocks and Shares

Stocks	Highest 1937	Lowest 1937	Prices Apl. 20, 1938	Prices Rise, Fall
G.W.R.				
Cons. Ord. ...	67⅜	55¾	57	+1½
5% Con. Prefce. ...	127	108	117½	+3
5% Red.Pref.(1950)	113	109	109½	+1
4% Deb.	113⅝	102½	110	+1
4½% Deb.... ...	118	106	111½	+1
4½% Deb.	124½	112	117½	+1
5% Deb.	136½	122¾	129½	—
2½% Deb.... ...	76	64	67½	—
5% Rt. Charge ...	133 7/16	118	127½	—
5% Cons. Guar. ...	133¾	116½	127½	+1
L.M.S.R.				
Ord.	36⅛	25⅝	22	+¾
4% Prefce. (1923)	82½	65¾	60	+2½
4% Prefce. ...	92½	77¾	77	+1½
5% Red.Pref.(1955)	107¾	102	102	—
4% Deb.	108	99¼	104	+½
5% Red.Deb.(1952)	117½	111	113½	—
4% Guar. ...	104	95⅞	100½	+1
L.N.E.R.				
5% Pref. Ord. ...	12½	6¾	6¼	+¼
Def. Ord.	6¼	3⅝	3¼	+⅛
4% First Prefce.	79½	63	60	+2½
4% Second Prefce.	31½	21	22½	+1
5% Red.Pref.(1955)	101¼	89¾	89½	+1
4% First Guar. ...	103	91⅞	96½	+1½
4% Second Guar.	97⅝	85½	86½	+1½
3% Deb.	84⅛	74	77½	+½
4% Deb.	107¼	98½	103	+1
5% Red.Deb.(1947)	113½	106½	109½	+2
4½% Sinking Fund Red. Deb.	110 5/16	105½	108	+1
Southern				
Pref. Ord.... ...	98⅝	83½	78	+2
Def. Ord.	27⅞	16¾	20½	+1½
5% Pref.	126 1/16	105 13/16	114½	+1
5% Red.Pref.(1964)	118	110¼	113½	—
5% Guar. Prefce.	133¾	116¾	126½	+1
5% Red.Guar.Pref. (1957)	118½	111½	114	—
4% Deb.	112	101¼	108	+1
5% Deb.	135¾	123½	127½	—
4% Red. Deb. 1962–67	113	105	108½	+½
Belfast & C.D.				
Ord.	5	4	4½	—
Forth Bridge				
4% Deb.	106	99½	100½	—
4% Guar. ...	105¾	99	100½	—
G. Northern (Ireland)				
Ord.	11	5	5½	—
G. Southern (Ireland)				
Ord.	50	21½	20	—
Prefce.	61	34	30	—
Guar.	94¾	69½	51	—
Deb.	95	82⅛	79¾	—
L.P.T.B.				
4½% "A" ...	123¾	110½	118½	+1
5% "A" ...	135	121½	127½	—
4½% "T.F.A." ...	108¾	104	105½	+½
5% "B" ...	125	114½	120½	—
"C"	99¾	75	79½	—
Mersey				
Ord.	42⅜	22	19	—
4% Perp. Deb. ...	103	96¾	100	—
3% Perp. Deb. ...	77⅝	74½	74½	—
3% Perp. Prefce.	68¾	61¼	63	—

British and Irish Traffic Returns

GREAT BRITAIN	Totals for 14th Week			Totals to Date		
	1938	1937	Inc. or Dec.	1938	1937	Inc. or Dec.
	£	£	£	£	£	£
L.M.S.R. (6,855½ mls.)						
Passenger-train traffic...	467,000	424,000	+ 43,000	5,598,000	5,715,000	− 117,000
Merchandise, &c. ...	508,000	535,000	− 27,000	6,851,000	6,745,000	+ 106,000
Coal and coke ...	241,000	296,000	− 55,000	4,101,000	3,987,000	+ 114,000
Goods-train traffic ...	749,000	831,000	− 82,000	10,952,000	10,732,000	+ 220,000
Total receipts	1,216,000	1,255,000	− 39,000	16,550,000	16,447,000	+ 103,000
L.N.E.R. (6,315 mls.)						
Passenger-train traffic...	314,000	278,000	+ 36,000	3,704,000	3,786,000	− 82,000
Merchandise, &c. ...	346,000	367,000	− 21,000	4,802,000	4,637,000	+ 165,000
Coal and coke ...	231,000	270,000	− 39,000	3,819,000	3,620,000	+ 199,000
Goods-train traffic ...	577,000	637,000	− 60,000	8,621,000	8,257,000	+ 364,000
Total receipts	891,000	915,000	− 24,000	12,325,000	12,043,000	+ 282,000
G.W.R. (3,737 mls.)						
Passenger-train traffic...	195,000	183,000	+ 12,000	2,337,000	2,407,000	− 70,000
Merchandise, &c. ...	198,000	220,000	− 22,000	2,794,000	2,673,000	+ 121,000
Coal and coke ...	111,000	120,000	− 9,000	1,720,000	1,627,000	+ 93,000
Goods-train traffic ...	309,000	340,000	− 31,000	4,514,000	4,300,000	+ 214,000
Total receipts	504,000	523,000	− 19,000	6,851,000	6,707,000	+ 144,000
S.R. (2,147 mls.)						
Passenger-train traffic...	295,000	279,000	+ 16,000	3,675,000	3,722,000	− 47,000
Merchandise, &c. ...	62,000	66,000	− 4,000	845,500	823,000	+ 22,500
Coal and coke ...	24,000	31,000	− 7,000	502,500	488,000	+ 14,500
Goods-train traffic ...	86,000	97,000	− 11,000	1,348,000	1,311,000	+ 37,000
Total receipts	381,000	376,000	+ 5,000	5,023,000	5,033,000	− 10,000
Liverpool Overhead ... (6½ mls.)	1,251	1,191	+ 60	18,575	16,483	+ 2,092
Mersey (4½ mls.) ...	4,589	4,383	+ 206	61,269	59,418	+ 1,851
*London Passenger Transport Board ...	576,900	575,900	+ 1,000	23,038,800	22,927,800	+ 111,000
IRELAND						
Belfast & C.D. pass. (80 mls.)	1,733	1,792	− 59	23,656	24,332	− 676
,, ,, goods	427	527	− 100	6,232	6,864	− 632
,, ,, total	2,160	2,319	− 159	29,888	31,196	− 1,308
Great Northern pass. (543 mls.)	8,300	9,100	− 800	112,450	117,300	− 4,850
,, ,, goods	8,250	10,550	− 2,300	123,200	129,550	− 6,350
,, ,, total	16,550	19,650	− 3,100	235,650	246,850	− 11,200
Great Southern pass. (2,076 mls.)	30,391	29,911	+ 480	392,854	397,035	− 4,181
,, ,, goods	38,919	45,208	− 6,289	560,990	595,373	− 34,383
,, ,, total	69,310	75,119	− 5,809	953,844	992,408	− 38,564

* 41st week (before pooling)

British and Irish Traffic Returns

GREAT BRITAIN	Totals for 15th Week			Totals to Date		
	1938	1937	Inc. or Dec.	1938	1937	Inc. or Dec.
	£	£	£	£	£	£
L.M.S.R. (6,855½ mls.)						
Passenger-train traffic...	696,000	432,000	+ 264,000	6,294,000	6,147,000	+ 147,000
Merchandise, &c. ...	415,000	549,000	− 134,000	7,266,000	7,294,000	− 28,000
Coal and coke ...	219,000	283,000	− 64,000	4,320,000	4,270,000	+ 50,000
Goods-train traffic ...	634,000	832,000	− 198,000	11,586,000	11,564,000	+ 22,000
Total receipts	1,330,000	1,264,000	+ 66,000	17,880,000	17,711,000	+ 169,000
L.N.E.R. (6,315 mls.)						
Passenger-train traffic...	415,000	284,000	+ 131,000	4,119,000	4,070,000	+ 49,000
Merchandise, &c. ...	275,000	376,000	− 101,000	5,077,000	5,013,000	+ 64,000
Coal and coke ...	194,000	280,000	− 86,000	4,013,000	3,900,000	+ 113,000
Goods-train traffic ...	469,000	656,000	− 187,000	9,090,000	8,913,000	+ 177,000
Total receipts	884,000	940,000	− 56,000	13,209,000	12,983,000	+ 226,000
G.W.R. (3,737 mls.)						
Passenger-train traffic...	289,000	179,000	+ 110,000	2,626,000	2,586,000	+ 40,000
Merchandise, &c. ...	160,000	216,000	− 56,000	2,954,000	2,889,000	+ 65,000
Coal and coke ...	101,000	122,000	− 21,000	1,821,000	1,749,000	+ 72,000
Goods-train traffic ...	261,000	338,000	− 77,000	4,775,000	4,638,000	+ 137,000
Total receipts	550,000	517,000	+ 33,000	7,401,000	7,224,000	+ 177,000
S.R. (2,147 mls.)						
Passenger-train traffic...	431,000	278,000	+ 153,000	4,106,000	4,000,000	+ 106,000
Merchandise, &c. ...	52,000	69,000	− 17,000	897,500	892,000	+ 5,500
Coal and coke ...	23,000	34,000	− 11,000	525,500	522,000	+ 3,500
Goods-train traffic ...	75,000	103,000	− 28,000	1,423,000	1,414,000	+ 9,000
Total receipts	506,000	381,000	+ 125,000	5,529,000	5,414,000	+ 115,000
Liverpool Overhead ... (6½ mls.)	1,201	1,229	− 28	19,776	17,712	+ 2,064
Mersey (4½ mls.) ...	4,864	4,328	+ 536	66,133	63,746	+ 2,387
*London Passenger Transport Board ...	554,700	575,800	− 21,100	23,593,500	23,503,600	+ 89,900
IRELAND						
Belfast & C.D. pass. (80 mls.)	1,873	1,728	+ 145	25,529	26,060	− 531
,, ,, goods	509	593	− 84	6,741	7,457	− 716
,, ,, total	2,382	2,321	+ 61	32,270	33,517	− 1,247
Great Northern pass. (543 mls.)	10,700	8,050	+ 2,650	123,150	125,350	− 2,200
,, ,, goods	8,900	11,200	− 2,300	132,100	140,750	− 8,650
,, ,, total	19,600	19,250	+ 350	255,250	266,100	− 10,850
Great Southern pass. (2,076 mls.)	34,732	29,091	+ 5,641	427,586	426,126	+ 1,460
,, ,, goods	38,547	44,295	− 5,748	599,537	639,668	− 40,131
,, ,, total	73,279	73,386	− 107	1,027,123	1,065,794	− 38,671

* 42nd week (before pooling)

CONTRACTS AND TENDERS

Hudswell, Clarke & Co. Ltd. has received an order from Shell-Mex & B.P. Limited for one 153-h.p. 0-4-0 diesel locomotive fitted with three-speed traction type gearbox, tele-change mechanism which gives pre-selection and self-change of gears, Vulcan Sinclair hydraulic coupling, and six-cylinder McLaren-Ricardo engine. The whole equipment is to be flame and spark proof.

The Vulcan Foundry Limited has received orders from the Bengal & North Western Railway Administration to the inspection of Messrs. Rendel, Palmer & Tritton, for five boilers for P-class superheated locomotives and duplicate parts for locomotives including 122 cranks, seven pairs of crossheads, four sets of coupling rods, and one cylinder.

Turkish Rolling Stock Orders

Fried. Krupp A.G. has received a contract from the Turkish Government, states the Ankara correspondent of *The Financial Times*, for the supply of rolling stock, valued at about £T.16,000,000. Granting a six years' credit, Krupp undertakes to supply to Turkey 90 railway engines and over 1,100 trucks—including 25 cold-storage wagons—within three years.

The Royal Hungarian State Iron, Steel & Machine Works has received an order from the Great Indian Peninsula Railway, through Shaw Wallace & Co., for the supply of five superheated coal-burning locomotives to be fitted with MeLeSco superheater headers required for YS/1 type locomotives.

La Brugeoise et Nicaise & Delcuve has received orders from the Peruvian Corporation for three all-steel bogie flat wagons and three all-steel bogie high-sided wagons, all of 30 tons capacity.

La Brugeoise et Nicaise & Delcuve has also received an order from the Mysore State Railway Administration, to the inspection of Messrs. Rendel, Palmer & Tritton, for nine I.R.S. M.C.J. type four-wheeled covered wagons complete with wheels and axles and vacuum brake gear and 21 ft. 6 in. long over headstocks, 7 ft. 6 in. wide over solebars, and with a 12-ft. wheelbase.

Scharfenbergkupplung A.G. has received orders from the German State Railway for fully-automatic Scharfenberg couplers required for diesel-electric high-speed railcars. This equipment automatically couples the cars, making also the electric and airbrake connections, and at the same time opens the airbrake stopcocks. Uncoupling and separating the connections and closing the stopcocks are effected by a single control in the driver's cab. Several hundreds of this type of coupler are already in service on the German State Railway.

Scharfenbergkupplung A.G. has also supplied Scharfenberg couplers to the Polish State Railways for new electric stock, and the Netherland Railways for electric, diesel-electric, and diesel stock. The Buenos Aires underground lines also use these couplers and have recently placed new orders. Important orders are also in hand for equipment of rail vehicles used for the transport of coal and metals.

L.N.E.R. Electrification Orders

Good progress is being made with the L.N.E.R. electrification schemes in hand between Manchester and Sheffield, and in the London suburban area between Liverpool Street and Shenfield. Contracts to the value of £1,800,000 have already been let with British Insulated Cables Limited for the overhead line equipment and cable required in connection with these two schemes, and with the Metropolitan-Vickers Electrical Co. Ltd. for the motive units for 70 electric locomotives, the frames, superstructure, and wheels of which are being constructed in the L.N.E.R. shops at Doncaster. Overhead equipment will be installed on the 75 route miles between Manchester and Sheffield, together with the branch line to Wath-on-Dearne, and also between Liverpool Street and Fenchurch Street stations in London and Shenfield, aggregating 25 route miles. Reduced to single track mileage this comprises a total of 400 single track miles to be equipped, and some 8,500 tons of steelwork, 3,000 tons of copper, and many thousands of insulators and other fittings will be required. To expedite the erection of this overhead equipment the L.N.E.R. has just placed contracts with Grafton Cranes Limited for eight specially designed cranes to erect the supports for the overhead equipment both in the London area and between Manchester and Sheffield. They will be self-propelling and are so designed that they can work on one track without fouling the other. For the Manchester–Sheffield electrification three 2½-ton and two 10-ton cranes are being purchased, and for the electrification from Liverpool Street to Shenfield two 2½-ton and one 10-ton erectors are being acquired. It is hoped that the work of electrification will be completed in about 2½ years.

Morrison, Marshall & Hill has received an order from the Crown Agents for the Colonies for one 12½-in. centre 16-ft. bed Mitchell lathe for the Kenya & Uganda Railways.

Shaw Wallace & Co. has received orders from the Indian Stores Department for 352 broad-gauge 16-ton axles.

The Rohilkund & Kumaon Railway Administration has placed the following orders to the inspection of Messrs. Rendel, Palmer & Tritton :—

Robert Stephenson & Hawthorns Limited : Six sets of coupling rods and five engine cranks for special 4-6-0 locomotives.

A.B.C. Coupler & Engineering Co. Ltd. : 80 buffers for locomotives, carriages, and wagons.

Steel, Peech & Tozer : 150 tyres for carriages and wagons.

John Baker & Bessemer Limited : 128 tyres for locomotives.

D. Wickham & Co. Ltd. has received an order from the Peruvian Corporation for 30 four-wheeled 4 ft. 8½ in. gauge gang trolley trailers for the Central Railway.

Beckett, Laycock & Watkinson Limited has supplied for the 99 Drewry diesel railcars under construction for Argentina, Beckett, Laycock sliding door gear, and stainless steel louvres with purdah glass above the windows. In addition some of the railcars will be fitted with Beckett, Laycock Simoon horizontally sliding windows.

Samuel Fox & Co. Ltd. has received an order from the Egyptian State Railways Administration for carriage and wagon tyres (Ref. No. E.S.R. 21,792, total value £1,835, delivery f.o.b. Liverpool).

The South Indian Railway Administration has placed orders with Wm. Beardmore & Co. Ltd. for 27 steel axle billets and with Brown Bayley's Steel Works Limited for 136 laminated bearing springs, to be supplied to the inspection of Messrs. Robert White & Partners.

G.W.R. Works to be Undertaken

Locomotive Shed Roof Renewals : The roof of Shrewsbury (Coleham) locomotive shed was constructed nearly 60 years ago, and extensive renewals are necessary to the nine bays forming it. Four of these are to be reconstructed during the present year and the remainder will be dealt with subsequently. Completion of the renewals to the Birkenhead engine shed roof is now to be effected. The roof of Cardiff (Cathays) engine shed, which was constructed in 1883, covers two bays. Renewal of 170 ft. of one of the bays was undertaken in 1937 and the remainder of the work on this bay has now been authorised. Further repairs to Swindon engine shed roof are to be carried out.

Electrification of Pumping Plant : The pumping plant at Pilning, at present oil-driven, is to be converted to electrical operation. Water for locomotive purposes at Brimscombe is obtained by steam-driven pumps. The plant was installed in 1887 and now requires renewal, and the opportunity will be taken of converting it to electrical operation.

Docks Equipment : No. 2 hoist at Port Talbot Docks, which is 41 years old, is particularly suitable for loading the small craft taking cargoes of coal to the Channel Islands, &c., and it is to be reconditioned to enable it to be continued in use. In view of the increasing quantities of scrap metal being discharged at Swansea Docks, augmented facilities are to be provided by the provision of 20 steel trays, with chain slings.

At Swindon Works : The sand mill in the "J" shop (foundry) at the company's Swindon works is unable to cope with the large amount of sand at present required for foundry purposes. An additional machine is therefore to be installed, the plant being rearranged so that the two mills can be driven off the same shafting.

LEGAL AND OFFICIAL NOTICES

In the Court of the Railway Rates Tribunal.

Railways Act, 1921

1938 Review of Standard Charges and Exceptional Charges.

NOTICE IS HEREBY GIVEN that the Railway Rates Tribunal will sit at 10.30 a.m. on Tuesday, the 17th May, 1938, in Court "A," Judges' Quadrangle, Royal Courts of Justice, London, W.C.2, to review the Standard Charges and Exceptional Charges of each of the Amalgamated Companies pursuant to the provisions of Section 59 of the Railways Act, 1921.

Notice is further given that the Accounts and Statements relative to such Review lodged with the Tribunal by the said Amalgamated Companies may be inspected at the Office of the Registrar, Railway Rates Tribunal, Bush House, Aldwych, London, W.C.2, at any time during office hours. Copies of the Statements lodged by each of the four Amalgamated Companies (price 7s. 6d. each, or £1 10s. 0d. per set, post free) may be obtained, on prepayment, from Mr. G. Cole Deacon, Fielden House, 10, Great College Street, Westminster, S.W.1.

Any body or person desiring to make any Objection or Submission relative to the Review must file a Notice of their or his Objection or Submission with the Registrar of the Court on or before Thursday, 5th May, 1938. A separate Notice must be filed in relation to each Amalgamated Company.

Each Notice must be on foolscap size paper and must state concisely the ground or grounds of such Objection or Submission, and must be stamped with an adhesive fee stamp for 2s. 6d. (which can be purchased at the office of the Tribunal only). If sent by post each Notice must be accompanied by a Postal Order for 2s. 6d. payable to the Railway Rates Tribunal, when a stamp will be affixed at the office. Six additional copies of each Notice must be lodged with the original at the office of the Registrar.

Only the Amalgamated Companies and any body or person filing such Notice of Objection or Submission as aforesaid will be entitled to apply to be heard on the Review.

Dated this 11th day of April, 1938.

T. J. D. ATKINSON,
Registrar.

Crown Agents for the Colonies

COLONIAL GOVERNMENT APPOINTMENTS

APPLICATIONS from qualified candidates are invited for the following post :—

ASSISTANT MECHANICAL OFFICER

required for the Nigerian Government Railway for two tours each of 12-24 months, with possible permanency. Salary £475 a year rising to £840 a year. Free passages and quarters and liberal leave on full salary. Candidates, aged 28-35, must be Associate Members of either the Institution of Mechanical Engineers or the Institution of Locomotive Engineers. They must have served a full apprenticeship with a British Railway or Locomotive firm and subsequently have had at least five years' experience in a Railway Motive Power Department; and possess a sound knowledge of District Organisation and administration, together with experience of Running Shed Organisation and the supervision of footplate and Running Shed Staff.

Apply at once by letter, stating age, whether married or single and full particulars of qualifications and experience and mentioning this paper to the Crown Agents for the Colonies, 4, Millbank, London, S.W.1, quoting M/5504.

Crown Agents for the Colonies

COLONIAL GOVERNMENT APPOINTMENTS

APPLICATIONS from qualified candidates are invited for the following post :—

ASSISTANT ENGINEER

required for the Iraq State Railway for three years. Salary Iraq Dinars 70 a month (I.D. 1 equals £1). Free passages and liberal leave on full salary. The post is not pensionable but there is a Provident Fund scheme. Candidates, not over 40 years of age, must be Associate Members of the Institution of Civil Engineers or hold an engineering degree recognised as granting exemption from sections A and B of the A.M.I.C.E. examination; have had practical experience on a Railway; and be competent to carry out either construction or Open Lines work.

Apply at once by letter, stating age, whether married or single and full particulars of qualifications and experience and mentioning this paper to the Crown Agents for the Colonies, 4, Millbank, London, S.W.1, quoting M/5780.

RAILWAY AND OTHER REPORTS

San Paulo (Brazilian) Railway Co. Ltd.—The directors recommend a final dividend on the ordinary stock of 2 per cent., making 4 per cent., tax-free, for the year 1937. For 1936 the dividend was 5 per cent., tax-free.

Madras & Southern Mahratta Railway Co. Ltd.—The directors have declared an interim dividend for the half-year ending June 30, 1938, payable July 1, of 4½ per cent., namely 1¾ per cent. guaranteed interest and 2¾ per cent. from stockholders revenue account (including £45,000 balance of dividend equalisation reserve fund). This compares with 4 per cent. a year ago.

Keighley-West Yorkshire Services Limited.—For the year ended September 30, 1937, the profit, before depreciation, was £40,697, compared with £35,653 for the previous year. After deducting £880 interest on loans and £7,973 for taxation, and appropriating £6,565 to depreciation reserve, there is a balance of £25,278 which is equally divisible between the Keighley Corporation and the West Yorkshire Road Car Co. Ltd.

Bruce Peebles & Co. Ltd.—The profit for the year ended December 31, 1937, including interest received and transfer fees, and after deducting administration expenses, amounts to £39,412, to which falls to be added £4,020 brought forward, making a total of £43,432. Of this amount the sum of £8,000 has been applied to depreciation account and the sum of £17,321 to general reserve account, leaving a balance of £18,111. The directors recommend a dividend on the preference shares of 7½ per cent. for the year, less tax, and a further dividend of 2½ per cent. for the year, less tax, making up the full dividend of 10 per cent., payable March 31, 1938; also a dividend on the ordinary shares of 5 per cent. for the year, less tax, payable March 31, 1938, leaving £4,115 to be carried forward. The works have been fully employed during the year, and this has enabled a satisfactory trading profit to be earned.

P. & W. Maclellan Limited.—After charging £20,000 for depreciation the net profit for 1937 amounted to £50,842. This compares with £17,467 for 1936 and reduces the accumulated debit on profit and loss account to £99,862. The preference dividend is in arrear as from January 1, 1927. The works have been well employed during the year, but the output was restricted owing to difficulties in getting supplies of steel.

Ransomes & Rapier Limited.—Trading profit for the year 1937, after providing for depreciation, amounted to £64,166, and the net profit, after meeting heavier taxation and providing more for superannuation and staff bonus, was £27,137. The final dividend on the 10s. ordinary shares is 5 per cent., free of tax, making 7½ per cent., free of tax, for the year 1937. The year's dividend is payable on capital as increased by the issue of 59,000 shares in July last. The value of orders booked in 1937 constituted a new high record, and it is expected that the works will continue to operate at full capacity until the end of this year.

British Timken Limited.—After charging depreciation, the net profit for 1937 is £133,007, an improvement of £21,183 on 1936. Sums of £40,000 and £60,000 are transferred to tax reserve and to general reserve, respectively, and the dividend proposed is 15 per cent., less tax, the same as for 1936, but payable on capital as increased by the scrip bonus of 20 per cent. distributed in April, 1937. The carry forward is to be £25,139, compared with £25,882. The directors recommend that £60,000 of general reserve be capitalised, and that 60,000 £1 fully-paid shares be issued to shareholders in the proportion of one new share for every five held.

Hadfields Limited.—Trading profit for 1937, including investment and miscellaneous income, and after providing for depreciation and income tax, amounted to £308,037, compared with £269,489 for 1936. Debenture interest takes £38,997, against £50,066, leaving available for dividends £269,040, against £219,423. The final dividend recommended on the ordinary shares is 15 per cent., making 22½ per cent., less tax, for the year, and on a larger capital, because additional ordinary shares have been allotted in exchange for the surrender of debenture holdings at the rate of 30s. a share. For 1936 the dividend was 13¾ per cent., less tax. The amount to be carried forward is £291,300, against £214,334 brought in.

Forthcoming Events

Apr. 19-23.—Model Railway Club Exhibition, at Central Hall, Tothill Street, London, S.W.1.

Apr. 22 (*Fri.*).—Institute of Transport (East Midlands), at Guildhall, Nottingham, 7 p.m. Annual General Meeting.

Institute of Transport (Manchester-Liverpool), at Central Library, Manchester, 6.30 p.m. "Regional Control of Passenger Transport Services," by Mr. R. Adcock.

Institution of Mechanical Engineers, Storey's Gate, London, S.W.1, 6 p.m. "Some Problems in the Transmission of Power by Fluid Couplings," by Mr. H. Sinclair.

Apr. 23 (*Sat.*).—G.W.R. Units, R.E. (S.R.), at Chiltern Court Restaurant, Baker Street, London, N.W.1, 6.30 for 7 p.m. Annual Dinner.

XUM

Railway Share Market

Sentiment in the stock and share markets has benefited from more encouraging views in regard to international affairs and from hopes that the efforts of President Roosevelt to stimulate trade activity in the United States will meet with success later in the year. Earlier in the week prices in all sections of the Stock Exchange moved in favour of holders, but the gains were not fully held owing to contraction in the volume of business, the disposition being to await next week's Budget statement.

Home railway securities responded to the better general market conditions, but a tendency to lower prices was shown following publication of the traffic receipts, which were below market estimates. There was a disposition for attention to centre on the preference stocks, largely because of the attractive yields offered and the possibility that until traffic receipts develop a stronger trend they may have as good scope for capital appreciation as the ordinary stocks. Great Western ordinary was, however, probably the most active feature. At one time the price reached **57½**, but subsequently there was a reaction to **57**. L.M.S.R. ordinary, which was up to **22½** earlier in the week, later declined to **22**, but the 4 per cent. preference and 4 per cent. **1923** preference were fairly steady at **77** and **60** respectively. As in the case of preference issues of the other railways, the market is not particularly well supplied with stock, and the tendency is, therefore, for prices to respond readily to only a moderate increase in demand. L.N.E.R. second preference has improved to **23** and the first preference to **60**, but at one time the latter was **61**. Southern preferred was more active, and although earlier gains were not fully held, there has been improvement to **77¾** at the time of writing. The deferred was relatively steady at **20½**, partly on the view that, as the railway is essentially a passenger carrying line, its receipts may benefit later in the year from the "holidays with pay" developments. London Transport "C" at around **79½** again had a firm appearance.

Argentine railway securities showed some response to the better trend of markets, but there was little increase in demand reported, apart from the debentures of the leading companies. Nevertheless, the preference stocks also made better prices. Some attention was given to B.A. and Pacific issues on the recent news that the railway has been granted permission to lower wages. Central Argentine preference were better on balance, despite the unpromising traffic outlook suggested by latest news regarding the maize crop. In other directions San Paulo was below **40** at one time, but later improved to **42½**, sentiment having benefited from the 2 per cent. final dividend, making 4 per cent., tax free, for the year, which was in excess of market expectations. American railway stocks have improved. Canadian Pacific recovered to **6¼**.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

	Railways	Miles open 1937–38	Week Ending	Traffics for Week: Total this year	Traffics for Week: Inc. or Dec. compared with 1937	No. of Weeks	Aggregate Traffics to Date: Totals: This Year	Aggregate Traffics to Date: Totals: Last Year	Aggregate Traffics to Date: Increase or Decrease	Shares or Stock	Prices: Highest 1937	Prices: Lowest 1937	Prices: Apr. 20, 1938	Yield % (See Note)
				£	£		£	£	£					
South & Central America	Antofagasta (Chili) & Bolivia	834	10.4.38	17,720	— 4,440	15	245,850	251,510	— 5,660	Ord. Stk.	29	10¼	9½	Nil
	Argentine North Eastern	753	9.4.38	7,531	— 713	41	369,300	355,258	+ 14,042	,,	19¼	6	3	Nil
	Argentine Transandine	—	—	—	—	—	—	—	—	A. Deb.	93½	60	75	5
	Bolivar	174	Mar., 1938	4,800	— 1,300	13	11,900	17,200	— 5,300	6 p.c. Deb.	9½	5	8½	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds.	17	9	5½	£1 16
	Buenos Ayres & Pacific	2,806	9.4.38	101,303	— 24,007	41	3,603,540	3,783,913	— 180,373	Ord. Stk.	171⅛	5½	4½	Nil
	Buenos Ayres Central	190	26.3.38	$96,800	- $11,600	39	$4,633,700	$5,530,700	— $897,000	Mt. Deb.	41½	18	11½	Nil
	Buenos Ayres Gt. Southern	5,084	9.4.38	160,608	— 18,486	41	6,197,455	6,178,058	+ 19,397	Ord. Stk.	33¾	13½	12	Nil
	Buenos Ayres Western	1,930	9.4.38	44,789	— 15,199	41	1,860,794	2,006,219	— 145,425	,,	31¾	11¼	8½	Nil
	Central Argentine	3,700	9.4.38	107,965	— 70,540	41	5,010,441	6,287,955	— 1,277,514	,,	34¼	10¾	9	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	20½	4½	4	Nil
	Cent. Uruguay of M. Video	980	9.4.38	19,933	— 32	41	736,355	719,254	+ 17,101	Ord. Stk.	67/32	2	2½	Nil
	Cordoba Central	1,218	—	—	—	—	—	—	—	Ord. Inc.	6¼	1½	1½	Nil
	Costa Rica	188	Feb., 1938	18,767	+ 1,741	35	197,323	142,134	+ 55,189	Stk.	38	27	27½	7¼
	Dorada	70	Mar., 1938	14,400	— 2,500	13	46,800	48,000	— 1,200	1 Mt. Db.	107	106	106	5/8
	Entre Rios	810	9.4.38	13,430	+ 992	41	587,369	531,344	+ 56,025	Ord. Stk.	19 7/16	6	5	Nil
	Great Western of Brazil	1,092	9.4.38	6,400	— 200	15	119,500	122,900	— 3,400	Ord. Sh.	5/4	1/8	1/4	Nil
	International of Cl. Amer.	794	Feb., 1938	$477,297	— $42,015	9	$864,439	$1,033,251	— $168,812	—	—	—	—	—
	Interoceanic of Mexico	—	—	—	—	—	—	—	—	1st Pref.	2/-	1/-	1/2	Nil
	La Guaira & Caracas	22¾	Mar., 1938	5,095	— 585	13	14,675	16,875	— 2,200	Stk.	8½	6	8½	Nil
	Leopoldina	1,918	9.4.38	17,119	— 2,980	15	273,003	324,341	— 51,338	Ord. Stk.	9¼	3	2½	Nil
	Mexican	483	7.4.38	$298,200	+ $10,200	14	$4,373,100	$4,412,100	— $39,000	,,	1½	1/4	5/16	Nil
	Midland of Uruguay	319	Mar., 1938	10,313	+ 777	40	83,213	79,010	+ 7,203	,,	1/8	1/2	1/2	Nil
	Nitrate	384	15.4.38	5,037	— 1,917	15	53,035	54,287	— 1,252	Ord. Sh.	3 1/16	2	1¾	Nil
	Paraguay Central	274	9.4.38	$2,925,000	— $925,000	41	$126,279,000	$113,690,000	+ $12,589,000	Pr. Li. Stk.	84	79¼	72½	8¼
	Peruvian Corporation	1,059	Mar., 1938	80,434	— 5,486	39	740,756	730,807	+ 9,949	Pref.	14⅝	4½	3½	Nil
	Salvador	100	9.4.38	¢25,250	— ¢8,750	41	¢835,225	¢969,508	— ¢134,283	Pr. Li. Db.	23½	21½	22½	Nil
	San Paulo	153¾	3.4.38	31,854	+ 4,887	14	396,557	414,056	— 17,499	Ord. Stk.	98½	56	43	11⅝
	Taltal	160	Mar., 1938	1,285	— 2,595	39	31,955	31,810	+ 145	Ord. Sh.	1 7/16	11/16	5/4	13 3/16
	United of Havana	1,353	9.4.38	35,134	— 13,469	41	1,026,460	1,079,818	— 53,358	Ord. Stk.	55/8	31/32	2½	Nil
	Uruguay Northern	73	Mar., 1938	979	+ 179	40	8,430	9,292	— 862	Deb. Stk.	10	2	2	Nil
Canada	Canadian National	23,802	14.4.38	658,908	— 117,546	15	9,539,668	10,564,380	— 1,024,712	—	—	—	—	—
	Canadian Northern	—	—	—	—	—	—	—	— 4 p.c.	Perp. Dbs.	77	62½	62½	6⅜
	Grand Trunk	—	—	—	—	—	—	—	—	4 p.c. Gar.	101⅞	94½	98½	4 1/16
	Canadian Pacific	17,186	7.4.38	476,200	— 67,600	14	6,509,400	6,877,200	— 367,800	Ord. Stk.	18	7¼	6	Nil
India†	Assam Bengal	1,329	31.3.38	43,177	+ 3,014	52	1,397,290	1,357,316	+ 39,974	Ord. Stk.	86	73½	79	31 5/16
	Barsi Light	202	31.3.38	3,502	+ 397	52	138,675	115,125	+ 23,550	Ord. Sh.	66½	46	58	8⅝
	Bengal & North Western	2,107	20.3.38	79,753	— 10,898	24	1,333,811	1,423,002	— 89,191	Ord. Stk.	317	301	296½	6 1/16
	Bengal Dooars & Extension	161	31.3.38	3,791	+ 854	52	145,827	129,648	+ 16,179	,,	100	84	85½	7
	Bengal-Nagpur	3,268	31.3.38	234,150	+ 2,024	52	7,097,075	6,293,526	+ 803,549	,,	101	89	91½	4⅝
	Bombay, Baroda & Cl. India	3,072	10.4.38	278,475	— 825	1	278,475	279,300	— 825	,,	113	110½	110½	5 7/16
	Madras & Southern Mahratta	2,967	20.3.38	161,100	— 3,653	51	5,395,108	5,353,931	+ 41,177	,,	110	105	105½	8 1/16
	Rohilkund & Kumaon	571	20.3.38	17,067	— 2,118	24	262,912	279,070	— 16,158	,,	314	302	302½	5 15/16
	South Indian	2,531¾	20.3.38	115,533	— 1,871	51	4,068,225	3,895,093	+ 173,135	,,	103½	99½	102½	4⅝
Various	Beira-Umtali	204	Feb., 1938	87,194	+ 23,004	22	443,755	332,996	+ 110,759	—	—	—	—	—
	Egyptian Delta	620	31.3.38	6,545	+ 439	52	262,710	253,028	+ 9,682	Prf. Sh.	31/-	3/4	11/4	Nil
	Kenya & Uganda	1,625	Mar., 1938	279,680	— 4,212	13	802,157	852,979	— 50,822	—	—	—	—	—
	Manila	—	—	—	—	—	—	—	—	B. Deb	48⅛	43½	47 2/8	7⅝
	Midland of W. Australia	277	Feb., 1938	15,062	+ 3,739	35	113,039	106,190	+ 6,849	Inc. Deb	98	93½	93½	4¼
	Nigerian	1,900	12.3.38	35,735	— 40,869	50	2,,704,382	2,482,309	+ 222,073	—	—	—	—	—
	Rhodesia	2,442	Feb., 1938	391,093	+ 56,372	22	2 101,534	1,699,975	+ 401,559	—	—	—	—	—
	South Africa	13,263	26.3.38	580,479	— 29,780	52	33,015,402	31,512 914	+ 1,502,488	—	—	—	—	—
	Victoria	4,774	Jan., 1938	887,042	— 77,664	31	5,598,366	5,850,533	— 252,167	—	—	—	—	—

NOTE.—Yields are based on the approximate current prices and are within a fraction of 1/16

† Receipts are calculated @ 1s. 6d. to the rupee § ex dividend

The variation in Sterling value of the Argentine paper peso has lately been so great that the method of converting the Sterling weekly receipts at the par rate of exchange has proved misleading, the amount being overestimated. The statements are based on the current rates of exchange and not on the par value

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